2014 GED Formula Packet

ABOUT THIS PACKET

This packet is designed based on the GED formula sheet. It contains explanations, examples and problems to work out. The point is to train to take the GED test and be familiar with the formulas used in the test.

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GED

Contents

Appreciation to the following

www.ged.com for the formula sheet they provide.

www.math-drills.com for work sheets

www.mathisfun.com for ideas regarding graphics and methods for presenting concepts

www.virtualnerd.com for video links.

www.kutasoftware.com

Introduction

Inside this packet are many tools you'll need to pass the math GED test. These tools are formulas.

You do not need to memorize each formula, just how to read them and use them.

The first thing you need to do is change your mindset from, "I cannot do this," to, "I can do this." Secondly do not fear formulas. Rather, learn to understand and read them.

First things first. Let us look at a few formulas:

$A = \pi r^2$

$c = \Pi d$

P = 2L + 2W

Letters used in math are variables. A better way to look at variables is as place holders for an unknown number.

In these formulas we are looking for the values of A, C and P. We are looking for value of A, the lone letter on one side of the equal sign.

The other parts are π, or pi, 3.14, and d which means diameter, L = Length, and W = width. P means perimeter.

In math you will be using these formulas, and you will be given the diameter, the length and width. We plug the numbers into the variable, the term used is substitution, that is to put the numbers in place of the letters they represent.

Note: The math used in these three formulas is, multiplication and addition. Most formulas use basic math, adding, subtracting, multiplying and dividing, and an occasional square root.

Take a breath, relax, take an attitude of, "I am going to learn this no matter how long it takes. I am sticking to it, keeping a positive attitude of, 'I can.'"

The next step is learning how to use a calculator. You cannot take your cellphone into the testing room; therefore, it is better that you use a calculator while in class. The calculator GED testing service uses for its virtual calculator is the TI 30sx. It is what we will use in class. Master the functions and life will become much easier.

Other helpful tips:

- Ask for help.
- Use a tutor if available.
- Do your homework! Do more if necessary.

Mathematics Formula Sheet, 2014 GED:
Taken from GED testing Service.

Area of a:		
square	$A = s^2$	
rectangle	$A = lw$	
parallelogram	$A = bh$	
triangle	$A = \frac{1}{2}bh$	
trapezoid	$A = \frac{1}{2}h(b_1 + b_2)$	
circle	$A = \pi r^2$	
Perimeter of a:		
square	$P = 4s$	
rectangle	$P = 2l + 2w$	
triangle	$P = s_1 + s_2 + s_3$	
Circumference of a circle	$C = 2\pi r$ OR $C = \pi d$; $\pi \approx 3.14$	
Surface area and volume of a:		
rectangular/right prism	$SA = ph + 2B$	$V = Bh$
cylinder	$SA = 2\pi rh + 2\pi r^2$	$V = \pi r^2 h$
pyramid	$SA = \frac{1}{2}ps + B$	$V = \frac{1}{3}Bh$
cone	$SA = \pi rs + \pi r^2$	$V = \frac{1}{3}\pi r^2 h$
sphere	$SA = 4\pi r^2$	$V = \frac{4}{3}\pi r^3$
	(p = perimeter of base with area B; $\pi \approx 3.14$)	
Data		
mean	mean is equal to the total of the values of a data set, divided by the number of elements in the data set	
median	median is the middle value in an odd number of ordered values of a data set, or the mean of the two middle values in an even number of ordered values in a data set	
Algebra		
slope of a line	$m = \frac{y_2 - y_1}{x_2 - x_1}$	
slope-intercept form of the equation of a line	$y = mx + b$	
point-slope form of the equation of a line	$y - y_1 = m(x - x_1)$	
standard form of a quadratic equation	$y = ax^2 + bx + c$	
quadratic formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	
Pythagorean Theorem	$a^2 + b^2 = c^2$	
simple interest	$I = Prt$ (I = interest, P = principal, r = rate, t = time)	
distance formula	$d = rt$	
total cost	total cost = (number of units) × (price per unit)	

Provided by GED® Testing Service.

Order of operations

There is a set pattern of doing math that must be followed. This allows various people, doing the same problem, to come up with the same answer. In school, many teachers called it PEMDAS.

P = Parentheses ( ) [ ] { }

E = Exponents $\mathbf{4^2}$

M = Multiplication

D = Division

A = Addition

S = Subtraction

The basic concept is, you have to do each one of these mathematical operations first before moving on to the next, 1) clear parentheses, 2) solve exponents, 3) Do any multiplication, 4) solve any division, 5) do any addition, and 6) do any subtraction. This is true but there are times when we will do some of these steps out of order.

When solving problems, read the problem LEFT to RIGHT. Always do the math LEFT TO RIGHT. However, the exceptions to this is clearing parentheses and exponents. Those almost always must be done first.

Example 1: $\mathbf{9^2 \div + 14 \times (11 - 2) - 15}$

1: Parenthesis $\mathbf{9^2 \div 3 + 14 \times (11 - 2) - 15}$ $\mathbf{9^2 \div 3 + 14 \times 9 - 15}$	2) Exponents $\mathbf{9^2 \div 3 + 14 \times 9 - 15}$ $\mathbf{81 \div 3 + 14 \times 9 - 15}$
3) Multiplication or Division, whichever comes first. $\mathbf{81 \div 3 + 14 \times 9 - 15}$ $\mathbf{27 + 14 \times 9 - 15}$	4) Now we can do the multiplication, it comes 2nd. $\mathbf{27 + 14 \times 9 - 15}$ $\mathbf{27 + 126 - 15}$
5) Addition or Subtraction, whichever comes first. $\mathbf{27 + 126 - 15}$ $\mathbf{153 - 15}$	Addition or subtraction, whichever comes first. $\mathbf{153 - 15}$ $\mathbf{153 - 15 = 138}$

Notice: Multiplication or Division, whichever comes first. Same for Addition and Subtraction, reading left to right. We see, reading left to right that division came first, then multiplication. For addition and subtraction, addition came first.

Sometimes, there will be exponents within parenthesis, or parentheses within parentheses.

$9^2 \div 3 \times (11 - 2^2) - 15$ We first must do the 2^2 before we can clear the parentheses.

$9^2 \div 3 \times (2 + (11 - 2^2)) - 15$. In this example, we'd have to do the exponent in the ( ) first, then (11 – 4), once that is done, then we'd have to add the 2, to clear the outer set of ( ).

$9^2 \div 3 \times (2 + (11 - 4)) - 15$, First do the exponent inside the 2nd set of ( )

$9^2 \div 3 \times (2 + 7) - 15$, Next, the subtraction inside the 2nd set of ( )

$9^2 \div 3 \times 9 - 15$, Now, do the first exponent.

$81 \div 3 \times 9 - 15$, Multiplication or division whichever comes first then subtraction.

Answer = 228

Order of Operations

Solve each expression using the correct order of operations

$\mathbf{10 - \ 3^2 \ \div 9}$

$\mathbf{7^2 \ \div (\ 4 + 3\ )}$

$\mathbf{(\ 6 + \ 2^2\ ) \times 10}$

$\mathbf{(\ 4^3 - 10) \ \div 6}$

$\mathbf{9^2 \ \div (\ 4 + 5\ )}$

$\mathbf{10 + 8 - \ 6^2 \ \ \div (3^2 \ \mathit{x}\ 4)}$

12 - 3 + 5 x $(\mathbf{6^2 \ \div 2})$

$\mathbf{8 \ \div (\ 10 - 9)^3 \ \times 7 + \ 4^2}$

$\mathbf{(8 + \ 5^2)\mathit{x}\ ((9 - 7\ )^2 \ \div 2\ )}$

$\mathbf{\big(10\ x\ (6\ +\ 4)\big) \div (2^3 - 7\ )^2}$

One and Two Step Equations

Vocabulary:

Terms: are the smallest pieces of an equation, a number like 2, or 3x, are both terms.

Expression: And expression is only a piece like x + 5 or 3x-2y. There is no equal sign.

Equation: An equation is different from an expression simply because it has an = equal sigh and can be solved.

Solution: The answer after you have solved the equation.

Variables: Variables are letters used in place of an unknown number.

Inverse operations: Inverse means the opposite; the opposite of multiplication is division.

the opposite of division is multiplication and so on.

Example 1: Solve one step equation: r + 12 = 25

The task here is to find out what the value of **r** is. The r represents an unknown number. Make sure you pay attention to the following steps.

$$\begin{array}{rcl} r + 12 & = & 25 \\ \underline{-12} & & \underline{-12} \\ \boxed{r \quad = \quad 13} \end{array}$$

One Step:

The goal is to isolate the r by itself on one side of the **equal** sign.

To do so, we need to get rid of the + 12. We use the inverse of + 12 which is – 12. A negative 12 erases a positive 12 and we are left with nothing.

Balance: What you do to one side of the equal sign, you must do to the other side. You must now us the same -12 and subtract it from 25.

Doing so, we have r alone and 13 on the other side of the equal sign.

Example 2: Solve 5 + x = 3

$$\begin{array}{rcl} \cancel{5} + x & = & 3 \\ \underline{\cancel{-5} \qquad} & & \underline{-5} \\ x & = & -2 \end{array}$$

Notice that the variable x is in a different place. Doesn't matter. We still need to isolate the x on one side of the equation.

Using the opposite of a positive 5, we use a – 5. They destroy each other and we are left with;

X - - 2

Example 3: Solve the following

$\frac{x}{5} = 5$

Very different looking? What does the x over 5 mean? Division, right? What's the opposite of multiplication? Division! Recall, (3)5 means 3 x 5. ( ) next to a letter or a number indicates multiplication

$$\cancel{(5)}\frac{x}{\cancel{5}} = 5(5)$$

Our answer x =25

Infinite Algebra 1

One-Step Equations

Solve each equation.

1) $26 = 8 + v$

2) $3 + p = 8$

3) $15 + b = 23$

4) $-15 + n = -9$

5) $m + 4 = -12$

6) $x - 7 = 13$

7) $m - 9 = -13$

8) $p - 6 = -5$

9) $v - 15 = -27$

10) $n + 16 = 9$

11) $-104 = 8x$

12) $14b = -56$

13) $-6 = \frac{b}{18}$

14) $10n = 40$

Two Step Equations:

Now that you a basic understanding of one step equations, let’s look at two step equations

Example 1: Solve 8b + 5 = 29

The first step is the same as a one-step equation.

$$8b + 5 = 29$$
$$-5 \qquad -5$$

Step 1: Subtract 5 from both sides.

$$\frac{\cancel{8}b}{\cancel{8}} = \frac{24}{8}$$

Step 2: Divide both sides by 8.

$$\boxed{x = 3}$$

Our goal is still to get the variable alone on one side. Here we use a second step.

We have 8b = 24. We use division to get the x alone. The 8’s cancel each other out. Once again, what we do to one side, we must do to the other side.

Example 2: Solve, two different types of equations.

$$3x + 2 = 11$$
$$-2 \qquad -2$$
$$\frac{3x}{3} = \frac{9}{3}$$
$$x = 3$$

$$\frac{x}{4} - 2 = 5$$
$$+2 \qquad +2$$
$$\cancel{(4)}\frac{x}{\cancel{4}} = 7(4)$$
$$x = 28$$

Notice: both have 2 steps.

In the first problem we use a – 2 and subtract from both sides. Then we divide the 3 off from the x.

In the second problem we have to remove the – 2 by using a + 2, again on both sides. Then we use multiplication on both sides, and we are left with the x on one side and 28 on the other as the solution.

Example 3: Solve $5 + \frac{x}{6} = 13$

Step 1

Subtract 5 from both sides of the equation

$$5 + \frac{x}{6} = 13$$
$$-5 \qquad -5$$

Step 2

Then multiply both sides by 6

$$6\left(\frac{x}{6}\right) = (8)6$$

Step 3

Simplify

$$x = 48$$

Recall, we did this with the one step equation on the previous page.

https://virtualnerd.com/algebra-1/all/

Algebra 1

Two-Step Equations Practice

Solve each equation.

1) $3 + 5r = -47$

2) $-5 + \frac{n}{3} = -8$

3) $-53 = 3 - 8n$

4) $\frac{b}{2} - 2 = 0$

5) $-10x + 6 = -74$

6) $\frac{m}{9} - 7 = -8$

7) $3 - 5v = -22$

8) $9 + \frac{r}{6} = 7$

9) $-8 = -3 + \frac{m}{3}$

10) $7 = \frac{x}{9} + 8$

Combining Like Terms

Vocabulary:

Polynomial: A polynomial simply means, many numbers.

Terms: Recall, the word term can mean a number, 2, 7, 9. It can mean a number attached to a variable, such as 3x or 8y.

Like terms are terms that are similar. 2,7 and 9 are all numbers. 3x, 4x both have numbers and the same variable, as does 6y and 9y. These are like terms.

To solve some algebraic equations or simplify expressions, we must be able to combine like terms.

Example 1: simplify this expression. 3x + 5 + 7y + 2 + 9x - 4y

We can use a chart to help us figure this out

Left to right, place the terms into the chart.

Numbers with x, numbers with y and then numbers that are alone.

#X	#Y	Numbers along
3x 9x	7y -4y	5 2
12x	3y	7

Our simplified expression is 12x + 3y + 7

You must pay attention to negative and positive numbers (integers) and recall the rules. The minus and plus signs attach to the terms now. 3x – 2, the 2 is listed as – 2.

Example 2: simplify 7m + 14m – 6n – 5n + 2m

#m	#m	Numbers along
7m 14m 2m	-6n -5n	
23m	-11n	

Our simplified expression is 23m – 11n

Example 3: Simplify $5x + 8x + 10x^2 - 7x^2 - 4x$

We can use a chart to help us figure this out

Left to right, place the terms into the chart.

#X	$\boldsymbol{\#x^2}$	**Numbers along**
5x 8x -4x	$10x^2$ $-7x^2$	
9x	$3x^2$	

Our simplified expression is $\boldsymbol{3x^2}$***- 9x***

Example 4: Simplify $4x^3 + 3x^2 - 7 - x^2 + 2$

We can use a chart to help us figure this out

Left to right, place the terms into the chart.

$\boldsymbol{\#X^3}$	$\boldsymbol{\#x^2}$	**Numbers along**
$4x^3$	$3x^2$ x^2	-7 2
$4x^3$	$2x^2$	5

Our simplified expression is $4x^3$+ $2x^2$ +5

Use this charting method to sort out the terms. Don't forget integers. Add or subtract, combine as **necessary and there you go, you have your simplified expression.**

Example 5: *Distributive property* states 3(4 + 5x) that you can multiply the 3 into the items within the parenthesis.

3(4 + 5x) multiply the 3 and 4, and the 3 and 5x= 12 + 15X

Simplify: -2(-3x + 4) -7

Distribute the – 2 into the parenthesis, -2(-3x + 4) -7

Combine like terms:6x – 8 – 7.

Simplified equation is now 6x-15

CLASSWORK - Combining Like Terms & Distributive Property

Combine like terms to simplify each expression.

1) $-4x + 5x$

2) $1 + 5v + v - 6$

3) $4n + 4 + 1 + 3n$

4) $11a + 11a$

5) $-2x - 8 - 7x + 2$

6) $7v + 6v$

7) $-8x - 10x$

8) $6 - 7n - 2n - 8$

9) $2k - k$

10) $-p - 11 + 3$

11) $9n + 3n$

12) $12x + 11 - 4$

Use Distributive Property.

13) $3(-7 - 8n)$

14) $-8(1 + 5m)$

15) $8(r + 1)$

16) $8(7x + 8)$

17) $2(6n - 8)$

18) $-3(8 - b)$

19) $-5(8v - 2)$

20) $-2(x - 5)$

21) $-(3a - 3)$

22) $-2(7 - 2n)$

23) $-8(5 - 3v)$

24) $-7(6x - 3)$

First, use Distributive Property, then Combine Llike Terms to simplify each expression.

25) $-n + 4(n + 1)$

26) $-3(1 - 3x) + 2x$

27) $-2(-3k + 4) - 7$

28) $-3p - (-8 + 4p)$

29) $-4 + 6(-4x + 3)$

30) $3n + 3(1 + 8n)$

31) $-2 + 5(4 + 3r)$

32) $-1 + 3(m + 4)$

33) $-(-n + 2) - 2n$

34) $-3(5 + 2x) - 7$

Finding the circumference and area of a circle

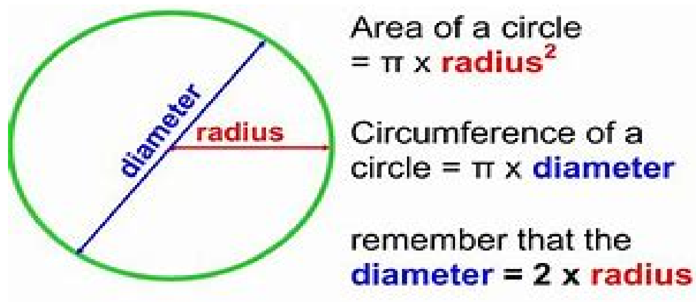
The circumference, **c**, of a circle is the measure around the outside of the circle.

Diameter, **d**, is the measurement across the center of the circle.

Radius, **r,** is a measurement from the center of the circle to anywhere on the outside line of the circle.

You will need to know what the d, is in order to find the circumference.

You will need to know what the r, is in order to find the area.



Formulas:

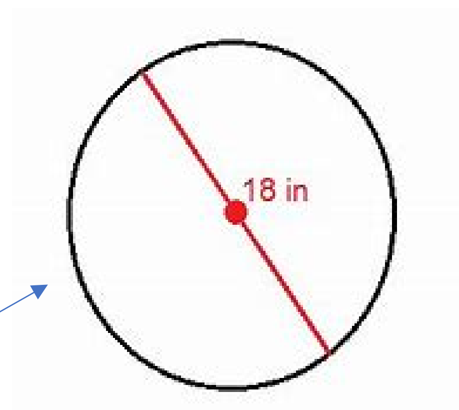
Circumference

$c = \pi d$

Area

$A = \pi r^2$

Recall, when letters or symbols are right next to each other, that indicates multiplication



Let us do this problem. What is the circumference and area of this circle?

Note: If you have the diameter, cut that number in half for the radius. ie: diameter of 10, radius is 5

Or if you have the radius, ie: 5, the diameter is 10

C = 3.14 × ________

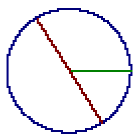
C = ________

A = 3.14 × $\_\_\_\_\_\_^2$

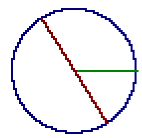
A = _________

Circumference and Area of Circles (A)

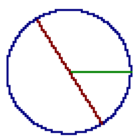
Find the circumference and area of each circle to one decimal place.



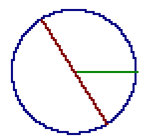
d = 7.9 cm



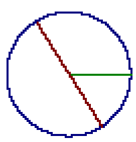
d = 6.3 cm



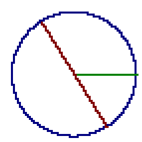
r = 7.3 cm



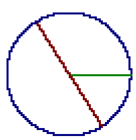
d = 5.5 cm



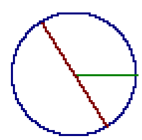
d = 9.5 mm



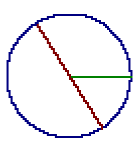
r = 1 yd



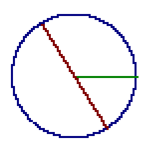
r = 9.7 m



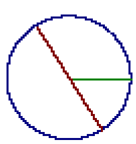
d = 7 m



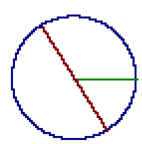
r = 0.5 m



r = 2.4 cm

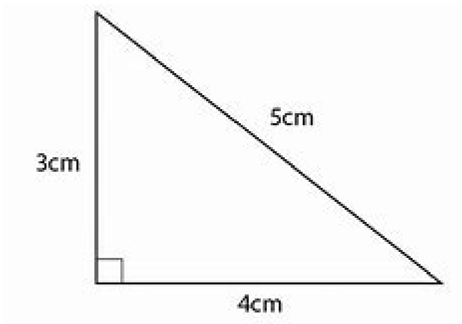


d = 0.9 mi



r = 8 in

Finding the perimeter, area and missing side of a right triangle



Perimeter, p, in any triangle p = a + b + c, add up the three sides.

$Area, a = \frac{1}{2}bh$

b = base

h = height

a is usually the vertical side, 3 cm which is also the height.

The base b is always the horizontal or bottom side.

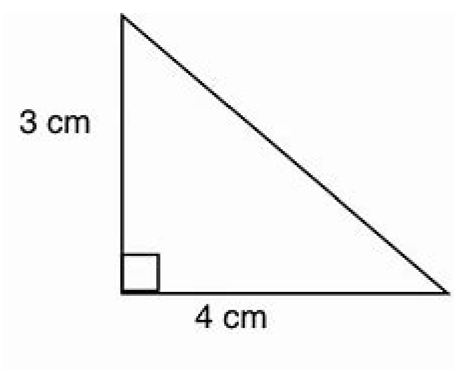
Let's do this triangle

p = 3 + 4 + 5 = 12 cm

In your calculator you enter, 0.5 x 4 x 3 = 6 sqcm (note, must answer in square units sqft, sqin, sqcm.

Pythagorean Theorem

$$a^2 + b^2 = c^2$$



a is the vertical leg/side and b is the horizontal or bottom side, a = 3 cm, b = 4 cm.

The longer or sloped side is c the hypotenuse.

Now enter them into the formula.

$3^2 + 4^2 = c^2$

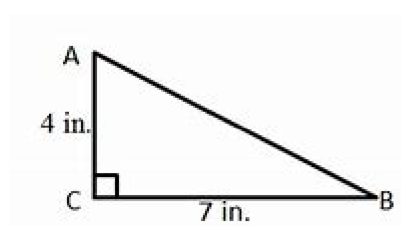
$9 + 16 = c^2$

$25 = c^2$ Not done yet, we have to unsquared c

$\sqrt{25} = c$ find the square root of 25.

5 = c, so five is the measurement of the side c

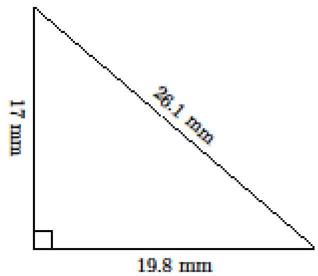
Now try one on your own



Perimeter and Area of Triangles (A)

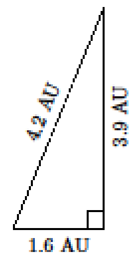
Calculate the perimeter and area for each triangle.

1.



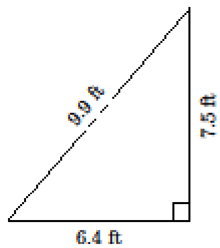
P = ? mm
A = ? mm^2

2.



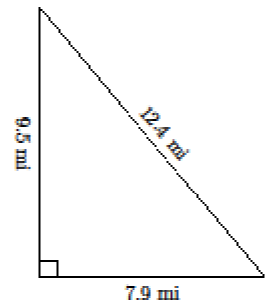
P = ? AU
A = ? AU^2

3.



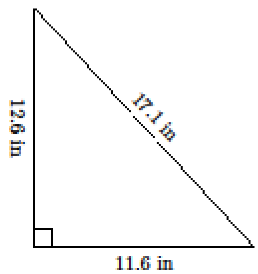
P = ? ft
A = ? ft^2

4.



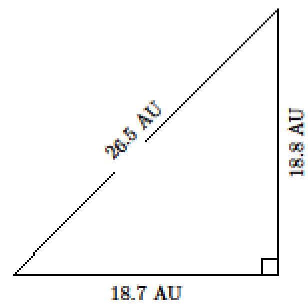
P = ? mi
A = ? mi^2

5.



P = ? in
A = ? in^2

6.



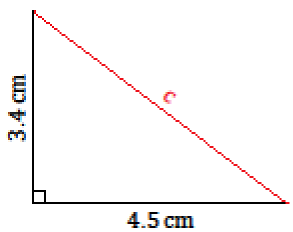
P = ? AU
A = ? AU^2

Pythagorean Theorem (A)

Name: ____________________ **Date:** ______________

Calculate the missing side measurement using $a^2 + b^2 = c^2$.

1.



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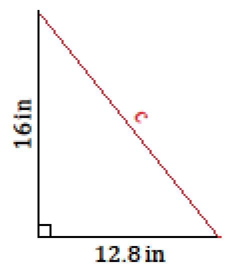

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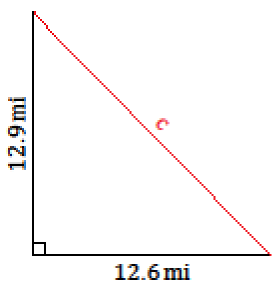

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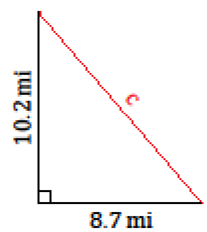

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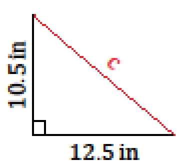

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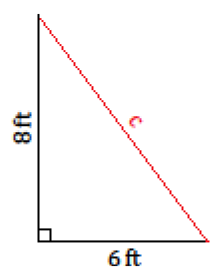
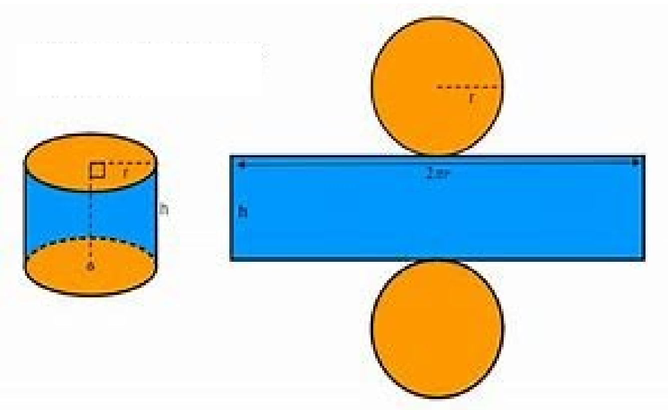


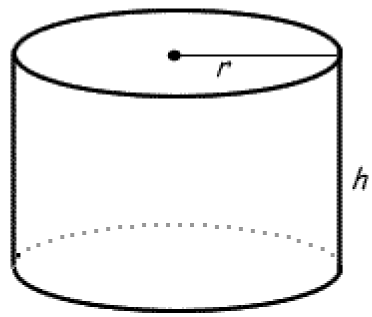
Finding the surface area and volume of a Cylinder



This is what is meant by surface area. This is the view if we unroll the cylinder, and add the top and bottom of the cylinder

Formula: surface area

We must find the area of the top and bottom parts of the cylinder and the side of the cylinder itself.



Area of the top is πr^2

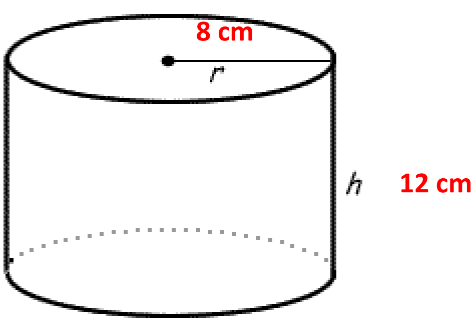
Area of the bottom is πr^2

Area of the side is $2\pi rh$

Put together into one formula: $sa = 2\pi r^2 + 2\pi rh$

π = 3.14, r = radius and h = height

Let’s try a problem.



$sa = 2\,\pi\,r^2 + 2\,\pi\,r\,h$

Fill in the blanks and enter into calculator

Sa = 2 × 3.14 × _____ + 2 × _____ × _____ × _____

Sa = ________

Volume is how much room is inside the cylinder. The formula is $v = \pi r^2$h.

Fill in the blanks and enter into the calculator.

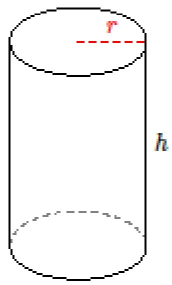
$v = 3.14 \times$ _____ × _____   v = __________

Area and Volume of Cylinders (A)

Calculate the surface area and volume for each cylinder.

Surface Area $= (\pi r^2 \times 2) + (\pi d \times h)$ Volume $= \pi r^2 \times h$ $d = 2r$

1.

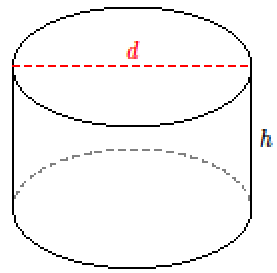


$r = 1.2$ km $h = 3.6$ km

Surface Area =

Volume =

2.

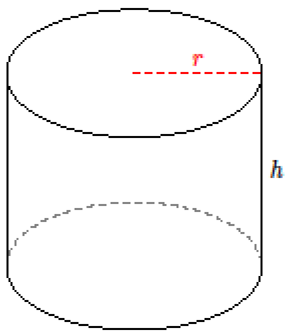


$d = 12.6$ cm $h = 7.5$ cm

Surface Area =

Volume =

3.

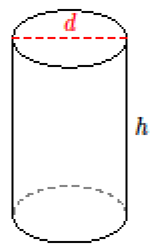


$r = 18$ ft $h = 27.2$ ft

Surface Area =

Volume =

4.

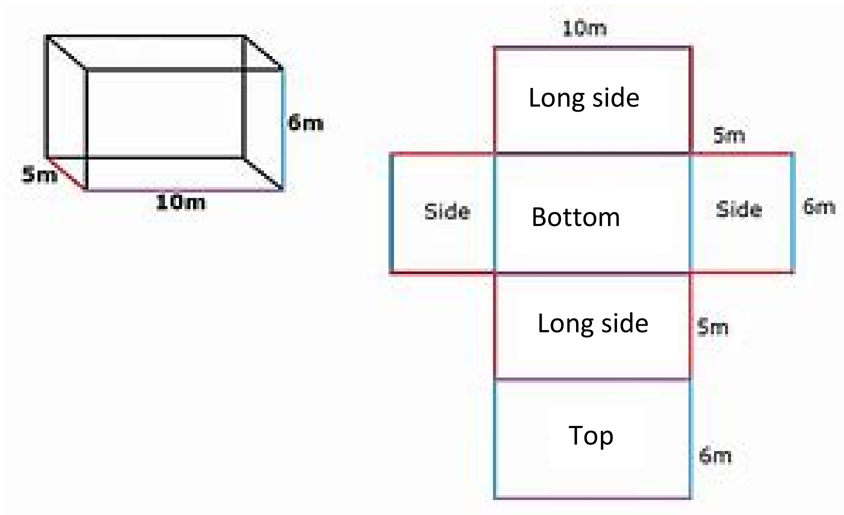


$d = 12$ m $h = 18.6$ m

Surface Area =

Volume =

Finding the surface area and volume of a rectangle



Surface area of a rectangle.

If we unfold a box, we notice that there are six sides that need to be taken into consideration.

And of course, we have a special formula for it.

Surface area formula: $sa = ph + 2b$

Break it down

p = perimeter of the bottom flat side. Recall p = 2l + 2w

b = the area of the flat bottom, a = lw

h = the height of the box.

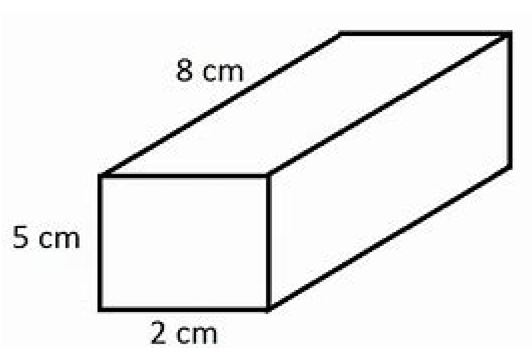
The perimeter is 2 × 10 + 2 × 5, p = 30 cm

The base is 10 × 5, a = 50

Height of the box is 6 cm

Now use these numbers to fill in the formula, enter into calculator

Let's try a problem



Perimeter, 2(___) + 2(___) = _____

The base is _______× _______ + _______

Height = ___________

Fill in the blanks

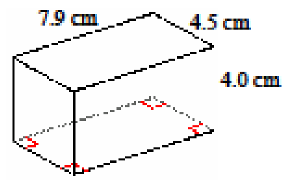
sa = ______ × ______ + 2 × _______ , sa = _________

Volume formula v = bh   v = _____ × ______, v = _________

Volume and Surface Area of Rectangular Prisms (A)

Instructions: Find the volume and surface area for each rectangular prism.

1)



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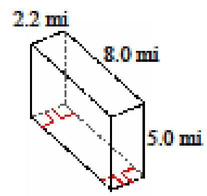
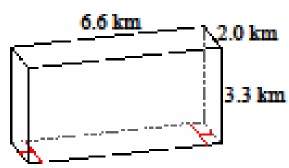
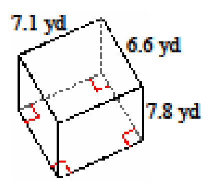


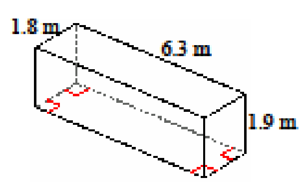
3)



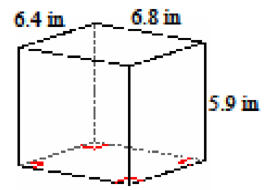
4)



5)



6)



Finding the surface area and volume of a cone

Cone

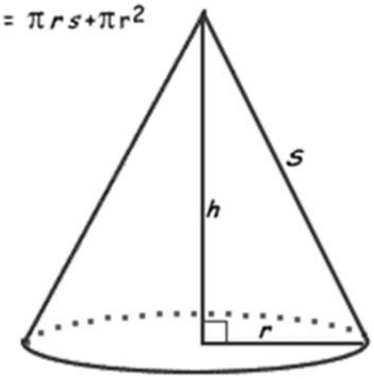
<u>Surface Area</u>

We will need to calculate the surface area of the cone and the base.

Area of the cone is $\pi r s$

Area of the base is πr^2

Therefore the Formula is: $SA = \pi r s + \pi r^2$



h = height

r = radius

s = side

<u>Volume</u>

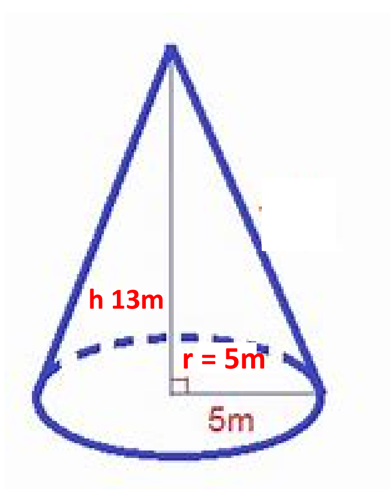
$$V = \frac{1}{3} \pi r^2 h$$

Note: in the formula the variable **S**, = the slope of the cone. The easiest formula to use to find the value of **S** is: $\mathbf{s = \sqrt{(r2 + h2)}}$, which means, ***the square root of the radius squared plus the height squared. Simply input into calculator as is stated.***

Don't forget to find the volume of the cone.

Let's do a problem.

Fill in the blanks with the right numbers



To find s, enter $\sqrt{\_\_\_\_\_^2 + \_\_\_\_\_^2}$ into your calculator

Use the answer for s in the surface area equation.

$$sa = 3.14 \times \_\_\_\_ \times \_\_\_\_ + 3.14 \times \_\_\_\_^2$$

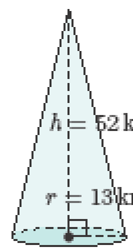
Your answer should be 296.73

Surface Area and Volume of Cones (A)

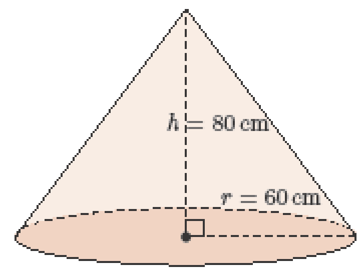
Calculate the surface area and volume for each cone.

$$\text{Surface Area} = \pi r(r + \sqrt{h^2 + r^2}) \quad \text{Volume} = \pi r^2 \frac{h}{3}$$

1.



2.



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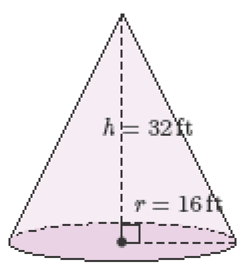
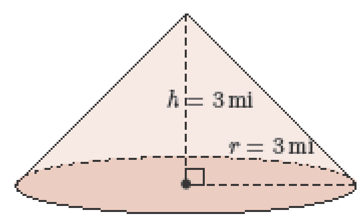
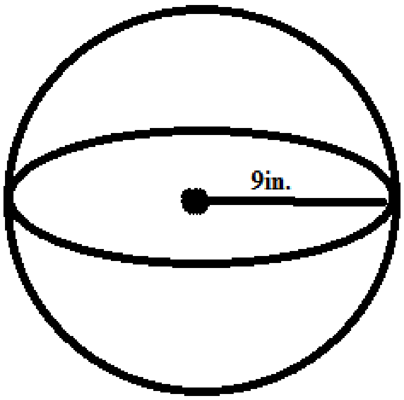


4.



Finding the surface area and volume of a Sphere



SA= $4\pi r^2$
$4*\pi*9^2$
$4*\pi*81$
321π
SA= 1017.9 in²

V= (4/3)πr^3
(4/3)π*9^3
(4/3)π*729
972π
V= 3053.6 in^3

Finding the SA and Volume of a sphere looks daunting but if you know how to use the TI 30sx, it's no problem at all.

Notice, you only need one number, the radius for both formulas. The rest are constants, numbers that don't change.

π= 3.14

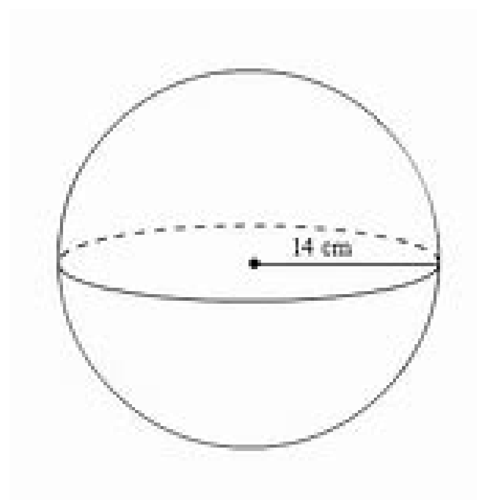
r= radius, note, SA radius squared but in volume it is cubed

4

$\frac{4}{3}$

$sa = 4\pi r^2$

$4 \times 3.14 \times \_\_\_\_\_\_^2$



$\frac{4}{3}\ x\ 3.14\ x\ \_\_\_\_\_\_^3$

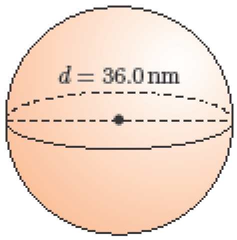
Understanding what numbers to input and how to input them into the calculator will make the difference.

Surface Area and Volume of Spheres (A)

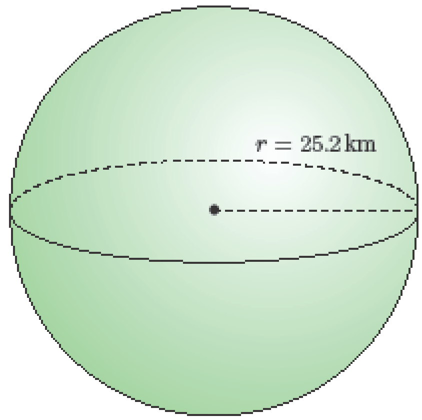
Calculate the surface area and volume for each sphere.

$$\text{Surface Area} = 4\pi r^2 \quad \text{Volume} = \frac{4}{3}\pi r^3$$

1.



2.



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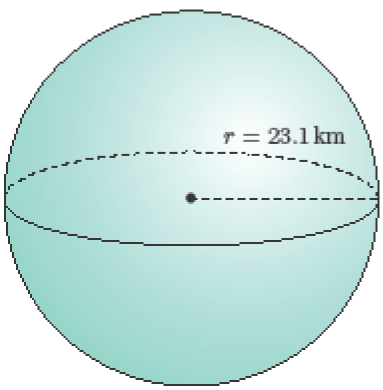

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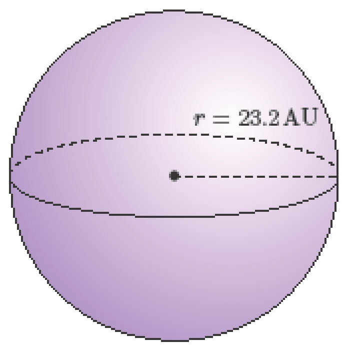


Surface Area application problems

1. A cosmetics company that makes small cylindrical bars of soap wraps the bars in plastic prior to shipping. Find the surface area of a bar of soap if the diameter is 5 cm and the height is 2 cm. Use 3.14 for π.	2. A company needs to buy boxes that will hold their products. When stacked up the products measure 15 inches long, 8 inches wide, and 10 inches high. What is the volume of the box needed?
3. In order to cover the box in problem #2 with customized wrapping, what is the surface area of the box?	4. Mrs. Amrhein has hired you to build a circular garden. You will need to place a plastic ground cover under the circle. If the diameter of the circle is 6 ft, what is the surface area of the plastic that you need?
5. Jim is buying a large aquarium. It will measure 6 ft long, 3 feet wide and 4 feet high. What is the volume of this aquarium and if there are 7.48 gallons per cubic feet, how much water will it take to fill the tank?	6. Campbell Soup hires you to create a new label to wrap around a new can of soup. The can's diameter is 2.5 inches, and the height of the can is 4. How much material will Campbell soup need for each label? (*Note, you do not need the second part of the SA formula*)
7. You are building a triangular fence, Side (a) is 15 feet, side (b) is 22 feet, what is the length of side (c) and what is the area of this triangular area?	8. A company that makes cone shaped drinking cups, just created a new cup. They ask you to determine how much water will fit in the new cup, if the cone has a diameter of 1.5 inches and a height of 3 inches?

How to determine Mean and Median

What is Mean? This is just a fancy word for average. So, the next question is, how do you find the mean/average?

In order to find the mean or average, we must add up all the numbers in a set, i.e. {23, 18, 10, 24, 45, 50.} Add them together we get 170. Not done yet. Now you must divide 170 by the number of items in the set. Items are the numbers in the set. There are 6 items in this set.

170 ÷ 6 = 28.333 is the mean or average.

You try: {110, 35, 88, 45, 90, 125, 79, 66}

Add up the numbers = ________. How many items are in the set? _______

Do the math, ________ ÷ ________ = __________ Mean =, ______________

Median:

To find the median, place the data set in order, smallest number to largest number (numerical order).

{10, 18, 23, 24, 45, 50}, this data set has an even number of items, 6. The median is the exact center of the set. If you notice that is between 23 and 24. There is nothing there. In order to find the median of this set, add the 23, and 24 together, 23 + 24 = 47. Take this number, 47 and divide by 2. The Median is 23.5.

However, if the number set was {10, 18, 20, 23, 24, 45, 50}. This data set has an odd number of Items 7. To find the Median, count left to right and right to left and find the exact center.

{<u>10, 18, 20,</u> 23, <u>24, 45, 50</u>}

Notice, now there is a whole number, 23, dead center.

Finding the Range:

if you subtract the smallest number from the largest number, in the case above, 125-35 = 88. This is the range of the data set.

Finding the Mode:

If you look at the data set and notice there are two of the same numbers, ie: { 110, 35, 88, 45, 90, 125, 90, 79, 66}, there are two 90s. this is the mode, 90. If there only single numbers there is no mode.

Mean, Median, Mode, and Range (A)

Calculate the mean, median, mode, and range of each set of numbers.

1) $\{1, 10, 6, 4, 2, 5, 3, 6, 5, 4\}$

2) $\{5, 10, 10, 6, 8, 6, 3, 7, 5, 3\}$

3) $\{2, 2, 2, 4, 3, 9, 7, 2, 7, 9\}$

4) $\{6, 3, 5, 7, 3, 8, 4, 3, 9, 3\}$

5) $\{6, 4, 9, 8, 3, 9, 7, 9, 6, 3\}$

6) $\{7, 4, 4, 6, 3, 5, 3, 8, 5, 3\}$

7) $\{8, 8, 7, 8, 8, 3, 4, 6, 8, 7\}$

8) $\{3, 4, 7, 8, 3, 4, 8, 8, 5, 7\}$

Mean, Median, Mode

1. The Blazers scored, 94, 134, 56, 120, 99, 128 and 56 last week, what is the mean and median score for the week?

Mean

Median

2. You are looking to rent an apartment. You have looked at many apartments and want to find the mean and median to help you make a good decision. The rents are, $1900, $1300, $1100, $1800, $950, $1250, $1700 and $2000.

Mean

Median

3. Your environmental class project is to calculate the mean, median, mode and range of rain fall over a year's time. You have collected the following date in inches.
{ 36, 10, 28, 8, 38, 28, 30, 17, 20, 35, 44, 37, 29, 36}

Mean________ Median ___________ Mode __________ Range __________

4. Quentin and Michael are on a bowling team. Below are their bowling scores.

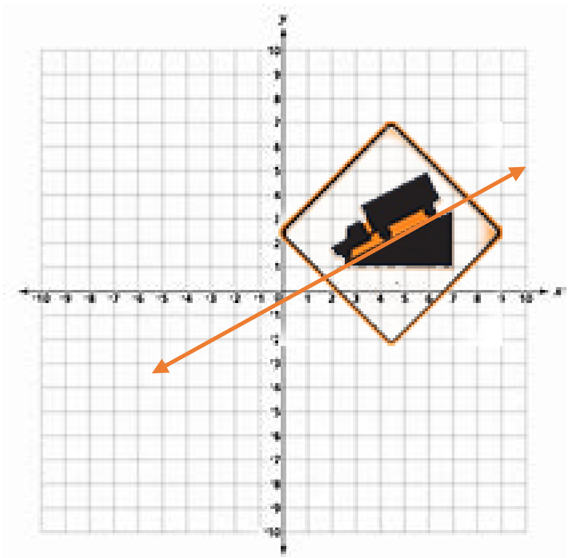
Michael: 220, 240, 219, 199, 189
Quentin: 230, 204, 244, 200, 215

How much higher is Michael's median score than Quentin's median score?

5. A bakery sells 30 cupcakes at $3.00 each, 12 cakes at $20.00 each, and 40 loaves of bread at $4.00 each. What is the average price of an item sold?

Coordinate Plan and Slope of a Line

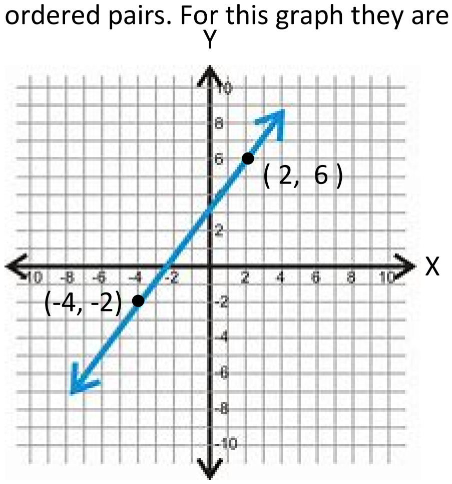
To understand the slope of line, consider the following picture. You notice that 8% and the angle that represents downhill, this is slope.



Notice the downgrade sign on the coordinate plane, the angle of the line is the slope of the line.

What do we need to know?

In order to use a graph and draw a line we have what is called ordered pairs. They are points on the graph represented by numbers. In the illustration below, we see to black dots on the blue arrow. To draw a line on a graph, there must be two points to connect. These two sets of numbers are called ordered pairs. For this graph they are (-4, -2) and (2, 6).



Notice that the two black lines on the graph, one is horizontal and labeled X, the other is vertical and labeled Y.

These are called the x and y axis.

All ordered pairs represent an X and Y on the grid and are always expressed this way, (X, Y). X is always first.

Note: We always read a graph from left to right, so the first set of coordinates is, (-4, -2), moving up to (2, 6).

Not to worry, let's try a few on the next page.

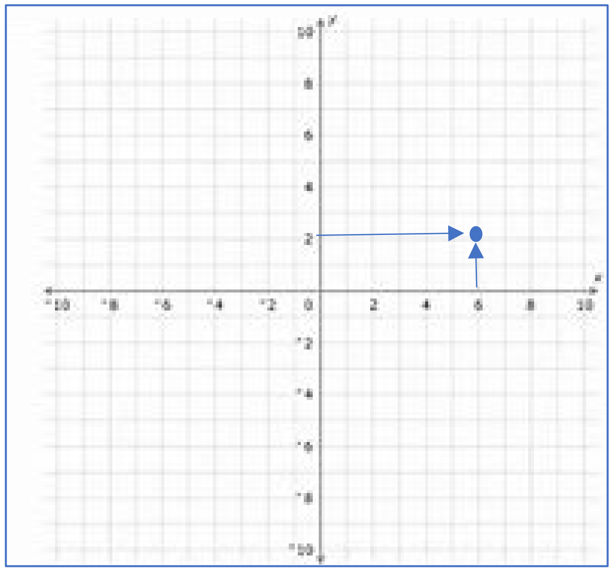
Put a dot on the graph for each set of ordered pairs.

1) (6, 2), let's do this together,

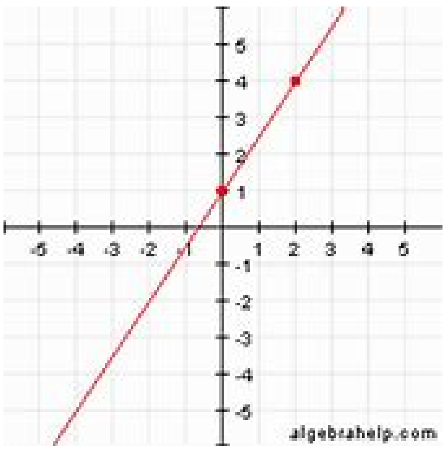
   Find the X first, in this case it is 6, then trace it up the y axis up 2. Make a dot.

   Notice, if you move to the left on the X axis the numbers become negative, and if you move down on the Y axis, the numbers also become Negative. Give it a try!

2) (-4, 4)
3) (8, -4)
4) (2, 6)



Finding Slope when you have a graph and a line drawn on the graph.



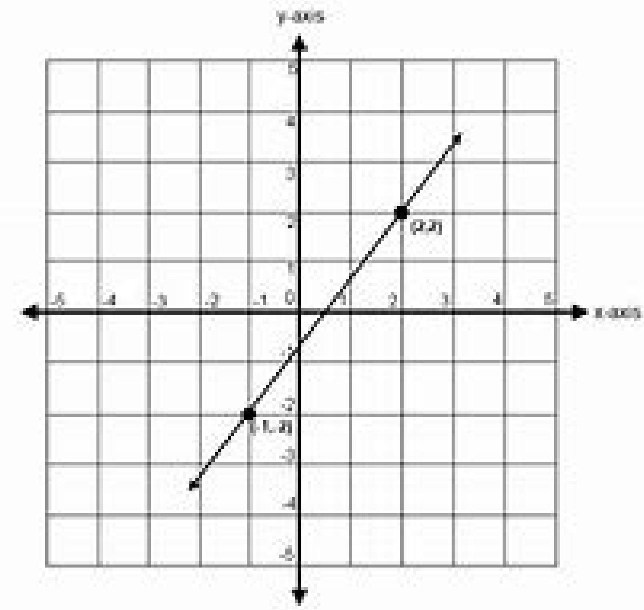
Note where the dots are, "Coordinates." Always read left to right. The first dot is on the y axis at (0, 1). There is no x coordinate as the dot is on the y axis. Moving left, we see the second dot is (2, 4)

Starting at the dot on the Y one, we can count up the y axis to the four. We went up 3 spaces. Now count right two spaces for the 2 on the X.

This is called rise over run, $\frac{Rise}{Run}$. We went up 3, and over 2. 3 is the rise, 2 is the run and looks like this. $\frac{3}{2}$

Now it's your turn. Doing exactly what was done in the example of above, start with the lower left-hand dot, coordinate, and the do the second dot.

Don't forget to right it as $\frac{Rise}{Run}$



Finding the Slope of a Line Given a set of Ordered Pairs

Here we are, formula time.

$$M = \frac{y_2 - y_1}{x_2 - x_1}$$

M stands for slope, the $\frac{Y_2 - Y_1}{X_2 - X_1}$ are simply empty place holders. They stand for two sets of ordered pairs. The y_2 and X_2 stand for the x and y coordinate in the second set of ordered pairs. Likewise the Y_1 and X_1 stands for the first set. Here is a set of ordered pairs. (3, 4) and (5, 1).

The first set is (3, 4) is your X_1 and Y_1

The second set (5, 1) is your X_2 and Y_2

Looking at it a different way

$\frac{(X_1, Y_1), (X_2, Y_2)}{(3,\ 4),\ (5,\ 1)}$

This always helps me keep track of the numbers and where they go.

$M = \frac{y_2 - y_1}{x_2 - x_1}$ Taking this formula, fill in the X and Ys with the correct numbers and do the "Math!"

$M = \frac{1-4}{5-3}$ Here you are going to have to recall integer rules.

M = $-\frac{3}{2}$ this is the slope of the line. Notice it is negative.

Your Turn.

1) Determine the slope of a line given the following ordered pairs, (-2, -1), (4, 3).

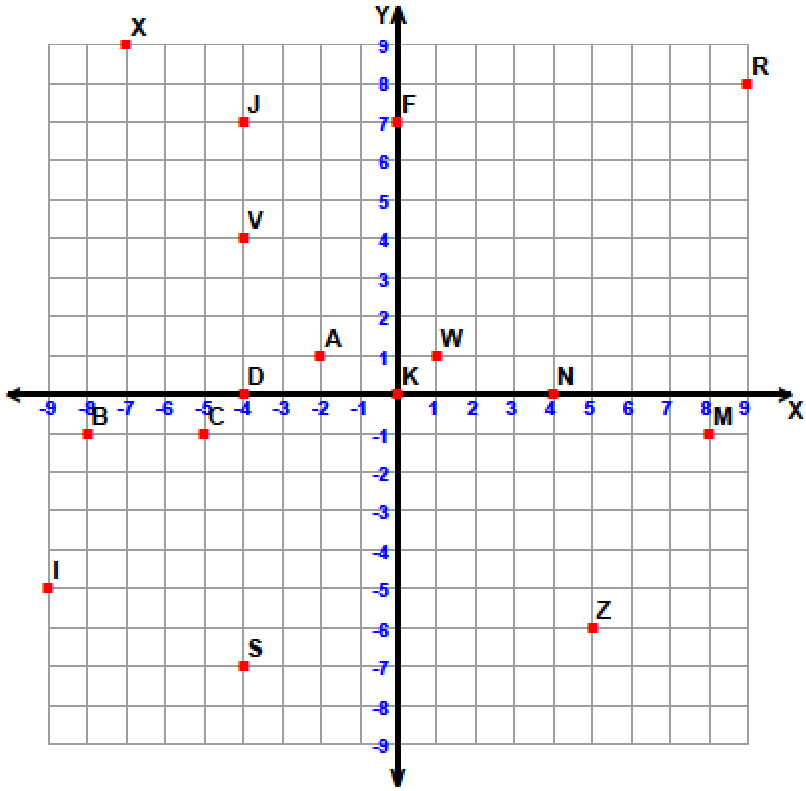
2) What is the slope of a line that has the following ordered pairs, (2, 1), (6, 3)?

3) What is the slope of a line that passes through (-6, 3) and (4, -3)?

Name : ____________________ Score : __________

Teacher : ____________________ Date : __________

Four Quadrant Ordered Pairs



Tell what point is located at each ordered pair.

1) (+0,+0) _____ 3) (-4,+0) _____ 5) (-4,+4) _____ 7) (+8,-1) _____

2) (-4,-7) _____ 4) (+5,-6) _____ 6) (-5,-1) _____ 8) (-8,-1) _____

Write the ordered pair for each given point.

9) **F** _______ 11) **W** _______ 13) **I** _______ 15) **A** _______

10) **J** _______ 12) **N** _______ 14) **R** _______ 16) **X** _______

Plot the following points on the coordinate grid.

17) **Q** (+7,+1) 19) **E** (-7,-2) 21) **G** (-8,+8) 23) **L** (-5,-5)

18) **O** (+4,-5) 20) **T** (-4,+2) 22) **U** (+6,-7) 24) **P** (-1,-6)

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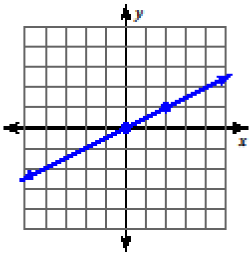
Finding Slope From a Graph

Date________________ Period____

Find the slope of each line.

1)



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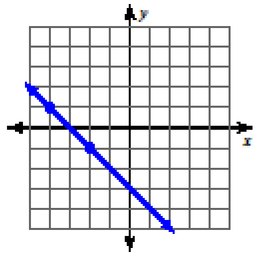

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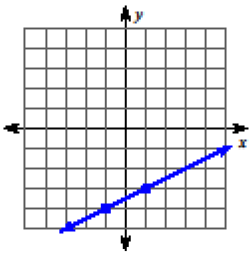

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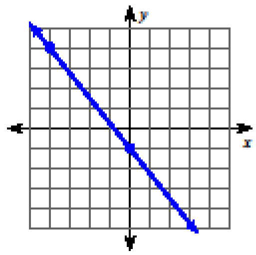

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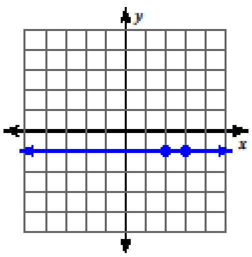

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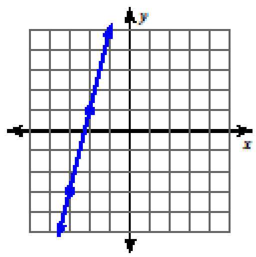

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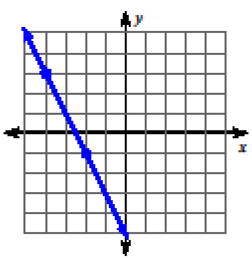

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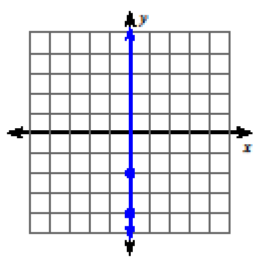

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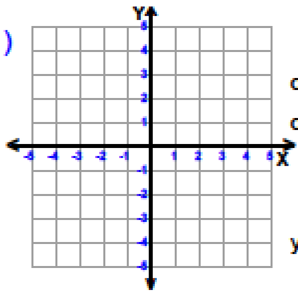
Teacher : ______________________ Date : __________

Sketch Each Line

1)

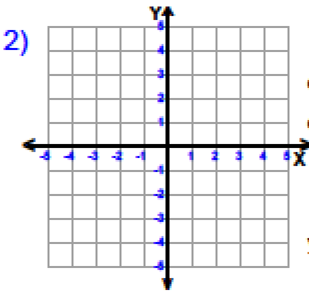


ordered pair = (-2,-4)

ordered pair = (-1,-1)

y-intercept = 2

2)

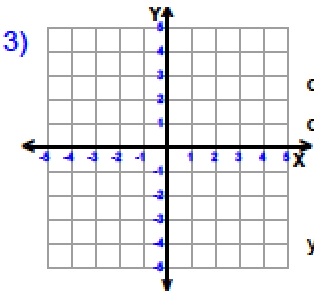


ordered pair = (5,-1)

ordered pair = (-5,-3)

y-intercept = - 2

3)

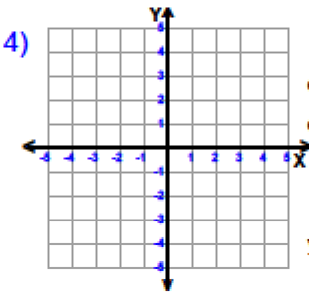


ordered pair = (-4,-3)

ordered pair = (4,1)

y-intercept = - 1

4)

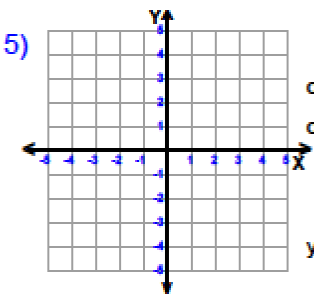


ordered pair = (2,2)

ordered pair = (4,0)

y-intercept = 4

5)

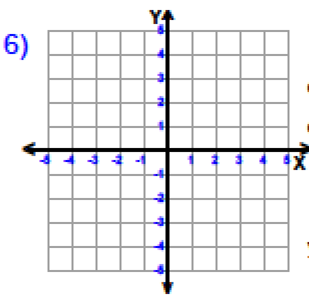


ordered pair = (3,-4)

ordered pair = (-3,0)

y-intercept = - 2

6)

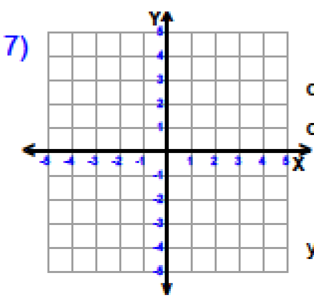


ordered pair = (-2,3)

ordered pair = (-1,0)

y-intercept = - 3

7)

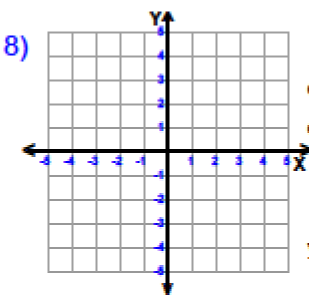


ordered pair = (2,4)

ordered pair = (1,0)

y-intercept = - 4

8)



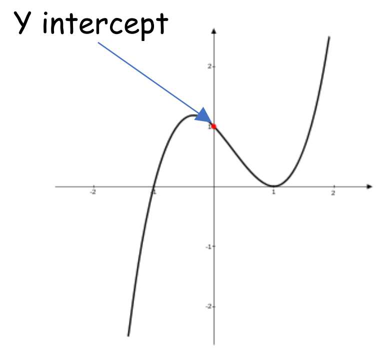
ordered pair = (3,3)

ordered pair = (-3,-1)

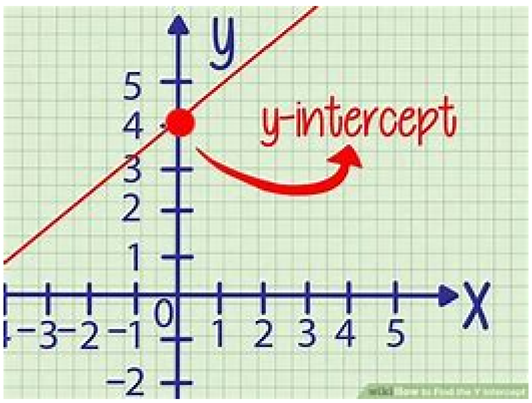
y-intercept = 1

Y intercept Form

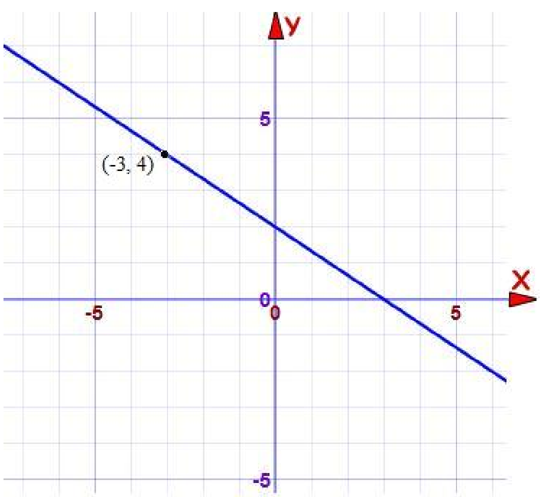
Simply put, the Y intercept is where a line crosses the Y axis.

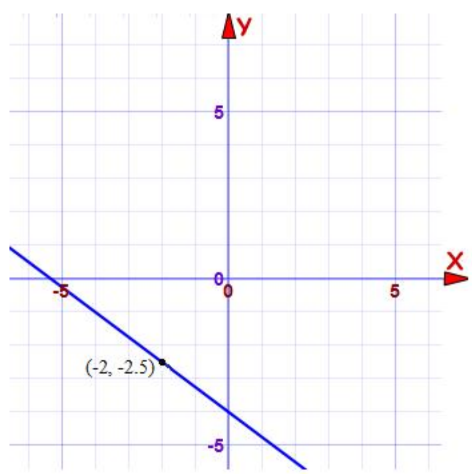


If we look at the y intercept as in the graph below, we see its ordered pair is (0, 4) Note: as the line crosses the y axis on the graph, there is no X value to consider.



Looking at the following graphs, what are the ordered pairs?

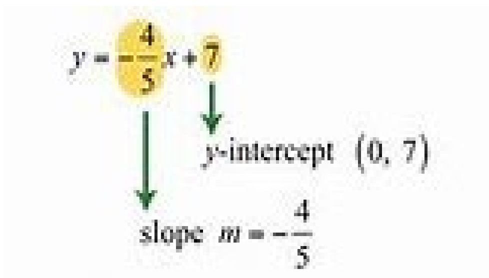




The formula y = mx + b is a standard form of the equation. We must understand what it means.

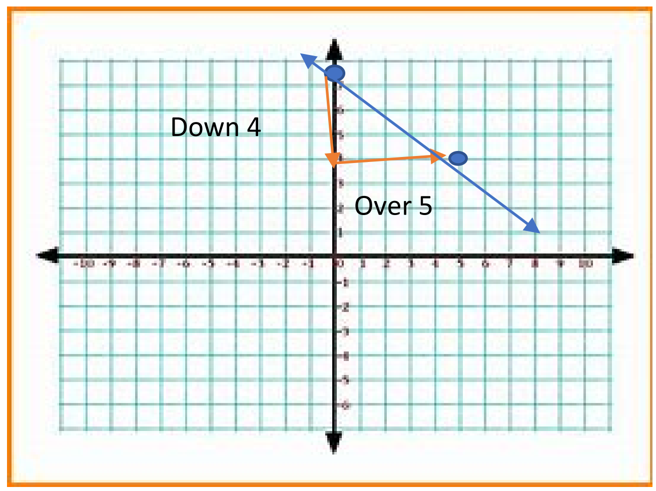
Defining the letters.

Recall that in an ordered pair you have an x coordinate and a y coordinate. Therefore, in the formula y=mx+b, we note, the m is the slope of the line, and the b is the y intercept.



In this example, $-\frac{4}{5}$ is the slope, recall this means $\frac{Rise}{Run}$.

The 7 is the y intercept. We can use this to plot the next point and draw a line.



If m = a whole number, y = 3x + 2

The slope 3 is $\frac{Rise\ of\ 3}{Run\ of\ 1}$ $or\ simply\ \frac{3}{1}x$

If there is just an x, then it is a slope of 1

Your chance to try find the slope m and the y intercept, y int.

Y = -2x +6 m = ______ y int ______

Y = $\frac{3}{7}$ x + 1 m = ______ y int ______

Coordinate planes, slope and y intercept application problems

1. Find the slope of a line that passes through the following points, (-2, 6), and (6, -2).

The following equation is used to calculate bike rental. Per hour rental fee, \$3, onetime fee of \$10.

Y = 3x + 10

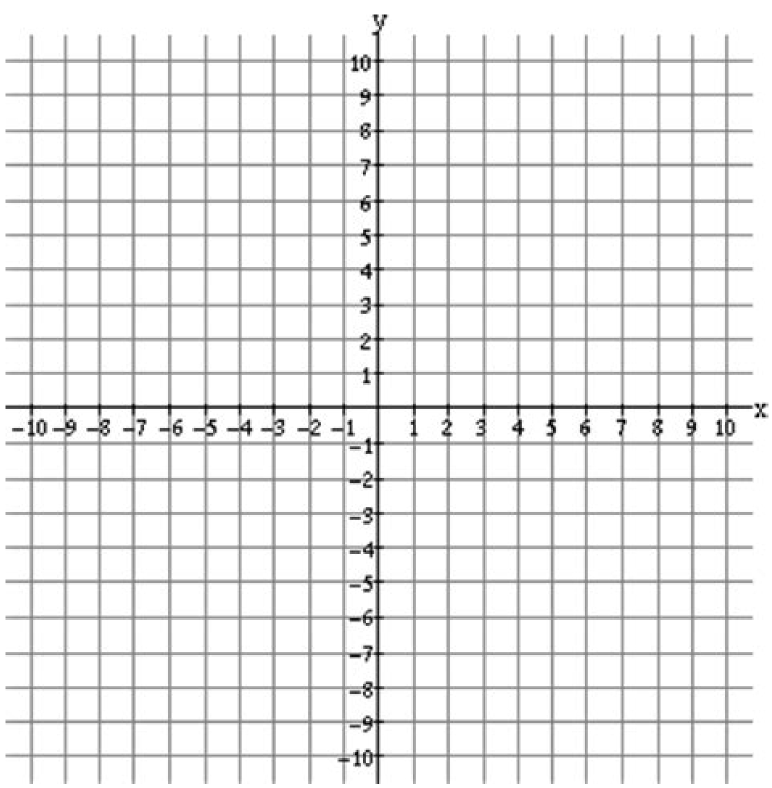
2. Graph a line for the following equation y = 3x + 7

3. Write an equation that you can use to calculate bike rental. You will charge a flat fee of \$5.00 and an hourly rental rate of \$2.00 per hour.

4. Using your equation from #3, fill in the total cost based upon your equation.

Hours x	**1**	**2**	**3**	**4**
Cost				
Pairs				

Plot the first two ordered pairs on the graph



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Finding Slope From Two Points

Date_______________ Period____

Find the slope of the line through each pair of points.

1) $(19, -16), (-7, -15)$

2) $(1, -19), (-2, -7)$

3) $(-4, 7), (-6, -4)$

4) $(20, 8), (9, 16)$

5) $(17, -13), (17, 8)$

6) $(19, 3), (20, 3)$

7) $(3, 0), (-11, -15)$

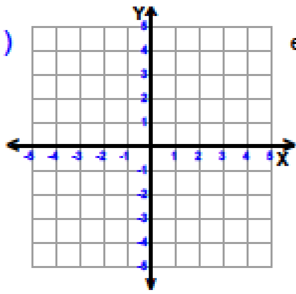
8) $(19, -2), (-11, 10)$

Y = mx + b

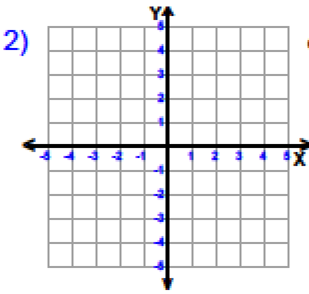
Name : ______________________ Score : __________

Teacher : ______________________ Date : __________

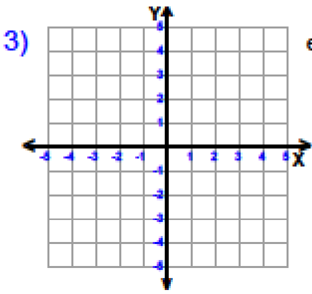
Sketch Each Line

1) 

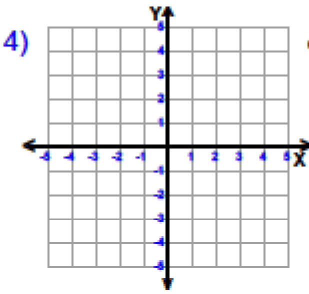
equation $y = -x + 2$

2) 

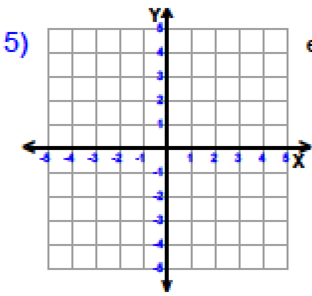
equation $y = -3x - 3$

3) 

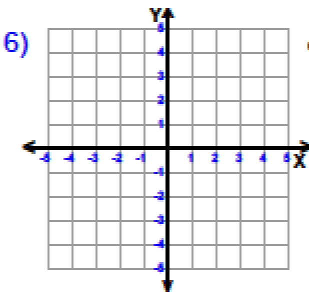
equation $y = \frac{1}{2}x + 4$

4) 

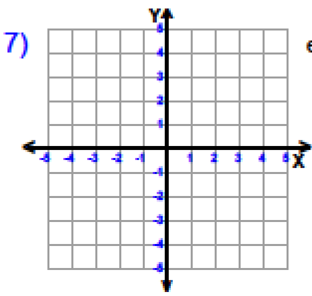
equation $y = -\frac{4}{3}x - 1$

5) 

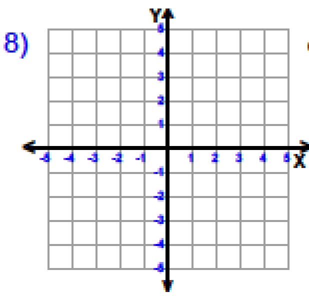
equation $y = -\frac{7}{3}x + 4$

6) 

equation $y = -\frac{4}{3}x + 1$

7) 

equation $y = -\frac{3}{4}x + 4$

8) 

equation $y = -x + 4$

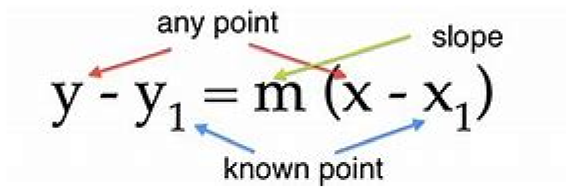
Point Slope Form

Point slope is another linear equation and is useful when we know the coordinates, ordered pair, of one point on the graph and the slope, m. With this information we can calculate the y = mx + b and graph.

The formula

$y - y_1$ = m(x - x_1)

Or another way to see it.



Lets look at an example

Known point → (-1, -5) m = 4 ← Known Slope

Ordered pair, x = -1 and y = -5

Slope or m = 4.

All you need to do is put the – 1 into the x_1 and – 5 into the y_1 and 4 into the m.

Then treat like other equations and isolate the y on one side of the = sign

$y - y_1 = m(x - x_1)$

Input point and slope

Y – (-5) = 4(x – (-1))

Y + 5 = 4(x + 1)

Y + 5 = 4x + 4

Y = 4x -1

Also, note the y – (-5) and the (x-(-1)) that the double negatives turn the – 5 into a positive 5 and the – 1 into a positive 1.

Distribute the 4, that is 4 * x and 4 * 1 to clear the parenthesis

Subtract the 5 from both sides of the equation

Your turn

1) m = 3, (2, 1) y = ___________________

2) m = 8, (2, 3) y = ___________________

Algebra 1 Name________________________ ID: 1

5.5 Point-Slope Form Date________________ Period____

Write the point-slope form of the equation of the line through the given point with the given slope.

1) through: $(2, 3)$, slope $= 2$

2) through: $(-2, -2)$, slope $= 2$

3) through: $(-4, -5)$, slope $= \frac{5}{4}$

4) through: $(2, -2)$, slope $= -3$

5) through: $(4, -3)$, slope $= \frac{1}{4}$

6) through: $(1, -1)$, slope $= -1$

7) through: $(-2, 0)$, slope $= -1$

8) through: $(-5, 2)$, slope $= \frac{3}{5}$

9) through: $(-2, 2)$, slope $= -\frac{3}{2}$

10) through: $(-1, 4)$, slope $= -9$

11) through: $(0, -5)$, slope $= -\frac{3}{2}$

12) through: $(2, -2)$, slope $= -\frac{7}{2}$

13) through: $(1, 4)$, slope $= 7$

14) through: $(-5, -4)$, slope $= \frac{2}{5}$

15) through: $(-3, 5)$, slope $= -\frac{1}{3}$

16) through: $(1, -1)$, slope $= -3$

17) through: $(-5, 1)$, slope $= \frac{2}{5}$

18) through: $(4, 2)$, slope $= 0$

19) through: $(-2, -5)$, slope $= 4$

20) through: $(2, -1)$, slope $= -\frac{3}{2}$

Inequalities

The term, inequality in math means a statement that uses the following symbols

Less then: <

Greater than: >

Less than or equal to: ≤,

Greater than or equal to: ≥,

Solving inequalities is no different than other equations. X + 2 > 12, as we all equations we are trying to isolate the variable x on one side of the sign, in this case, >.

$x + 2 - 2 > 12 - 2$, subtract 2 from both sides of the equation.

$x > 10$

Exception: When you divide or multiply in the final step with a negative number then the sign flips to the opposite sign.

- -2x + 5 ≥ 25, subtracting 5 from both sides we are left with -2x ≥ 20. We must divide the 2 from the x and 20, our answer will be x ≤ 10. Note the sign flipped to less than or equal to.

Another example:

Joan is planning her wedding. She has 200 guests coming. She rents a hall for $2000. She only has $7500 to spend for renting the hall and feeding her guests. She needs to know how much she can spend on each guest for lunch. Write an inequality to express this situation.

200 guests

x is the unknown lunch cost per guest

$2000, hall rental

$7500 is maximum $$ to spend.

We write it like this

$200x + 2000 \leq 7500$

We solve inequalities the way we solve all equations by isolating the variable. Using the example for Joan, we start by subtracting 2000 from both sides of the equation. Then we divide 200 from both sides and we are left with x on onside and a remained on the other side of the equation.

200x + 2000 ≤ 7500

-2000 -2000 1st subtract from both sides

$\frac{200x}{200} \leq \frac{5500}{200}$ 2nd divide both sides by 200

x ≤ 27.5 Cost per person x is $27.50 per person maximum.

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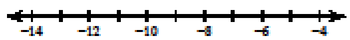
Two-Step Inequalities

Date________________ Period____

Solve each inequality and graph its solution.

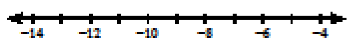
1) $2x + 4 \geq 24$

2) $\frac{m}{3} - 3 \leq -6$

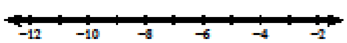


3) $-3(p + 1) \leq -18$

4) $-4(-4 + x) > 56$

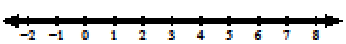


5) $-b - 2 > 8$



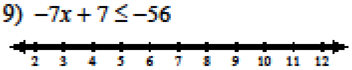
6) $-4(3 + n) > -32$

7) $4 + \frac{n}{3} < 6$

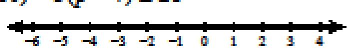


8) $-3(r - 4) \geq 0$

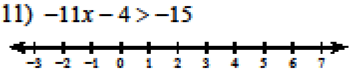
9) $-7x + 7 \leq -56$



10) $-3(p - 7) \geq 21$



11) $-11x - 4 > -15$



12) $\frac{-9 + a}{15} > 1$

Inequalities word problems

Use the first problem as an example of how to write an inequality, see if you can do it.

1) At the beginning of summer, Keith has \$500 in a saving account. He wants to spend \$50 a week on food, clothing, movie tickets and popcorn over the summer. Keith wants to have \$200 left by the end of summer. Which inequality will tell him how many weeks over the summer he can spend \$50 and still have \$200 in his savings account?
    a. $500x - 200 \le 50$
    b. $50x + 200 \ge 500$
    c. $50x - 200 \le 500$
    d. $200x - 50 \ge 50$
2) Joe charges a flat rate of \$3.00 and an additional \$1.50 per mile to ride in his cab. If Joan has \$10 to spend on a taxi ride, how far can she go? Make an inequality that can be used to calculate this.

3) Alyson is trying to decide if she wants to join a gym. The membership has a flat fee of \$125 for pool and hot tub maintenance and charges \$20 a month for membership. She has only \$400 in her budget to pay for this. Write an equality that she can use to determine how many months she can afford.

4) You own a roofing company and you want to create an equation that you can use to price out jobs. You charge a straight labor fee of \$3000, and you charge 82 per square. Your customers generally do not want to pay more than \$5000. Which inequality represents this problem?

5) Its prom night and your son wants to rent a limo to take his girlfriend to the prom and then to dinner after words. The Limo costs \$125 per hour, and you will be renting the limo for five hours. The limo company charges \$3.50 a mile the limo is driven. Your son wants to drive his girlfriend to dinner and then around town. You only have \$800 for this. Create an inequality to find out how many miles they can drive around.

Quadratic Functions

So far, all the formulas you have done have been linear, that is, they make straight lines when graphed. This section focuses on quadratic functions. When graphed, they created a curved line. So, what the is a quadratic function?

- The best way to describe a function is comparing it to a snack vending machine.
- There are many different types of snacks, each costing a different amount.
- You put in a certain amount and you get out a certain product.

This is basically what a function is, you put in certain known numbers, do the math and it returns a certain answer. Change the numbers you put in, and you get a different answer.

Lets look at it!

$f(x) = ax^2 + bx + c$ $\qquad$ $f(x) = 2x^2 + 3x + 4$

coefficients $\quad$ constant $\qquad$ coefficients $\quad$ constant

Coefficients are known numbers. The Constant is always the same.

The f(x) means, the function of x. That is, the x is the variable x are numbers that change, the input, like the vending machine, the choice you make and the associated cost.

Example: $f(x) = x^2 - 6x + 5$

We can start by drawing a table. For the x, we can input whatever numbers we want but keep is simple, start with zero.

X	0	1	2	3	4	5
F(x)						

We can now input the numbers for x into the equation and do the calculations.

This is called a table of values

X	0	1	2	3	4	5
F(x)	5	0	-3	-4	-3	0

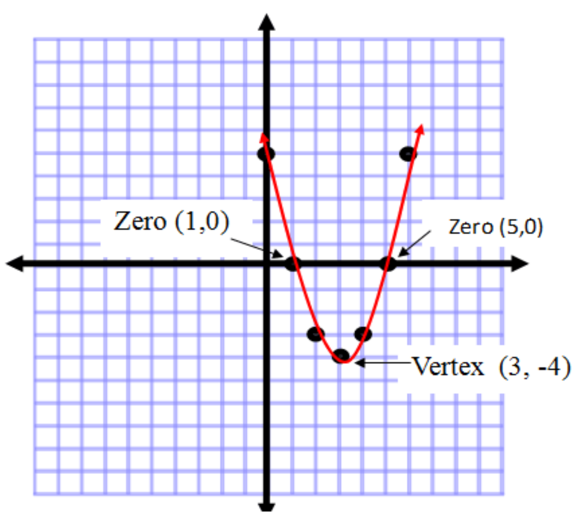
Let's do the math: start with 0	**Let's do the math: now do the 1**
$f(x) = (0)^2 - 6(0) + 5$	$f(x) = (1)^2 - 6(1) + 5$
We substitute a 0 in place of all the x's.	We substitute a 0 in place of all the x's.
$f(x) = 0 - 0 + 5$	$f(x) = 1 - 6 + 5$
Do the math, 2 times 0 squared = 0, 6 times zero = 0	Do the math, 2 times 0 squared = 0, 6 times zero = 0
$f(x) = 5$	$f(x) = 0$
Our final answer.	Our final answer.

Do this for all the numbers in the table.

Once you have the table filled out you can plot points on a graph.

The x are x coordinates and the f(x) are y coordinates in ordered pairs.

X	0	1	2	3	4	5
F(x)	5	0	-3	-4	-3	0
Pairs	(0, 5)	(1, 0)	(2, -3)	(3, -4)	(4, -3)	(5, 0)



Notice, the line is not a straight line but curved.

Vocabulary: Palabra, this is what this type of line is called.

Note how the coordinates are placed on the graph and then the line is drawn through the points.

The very tip of the line is called the vertex

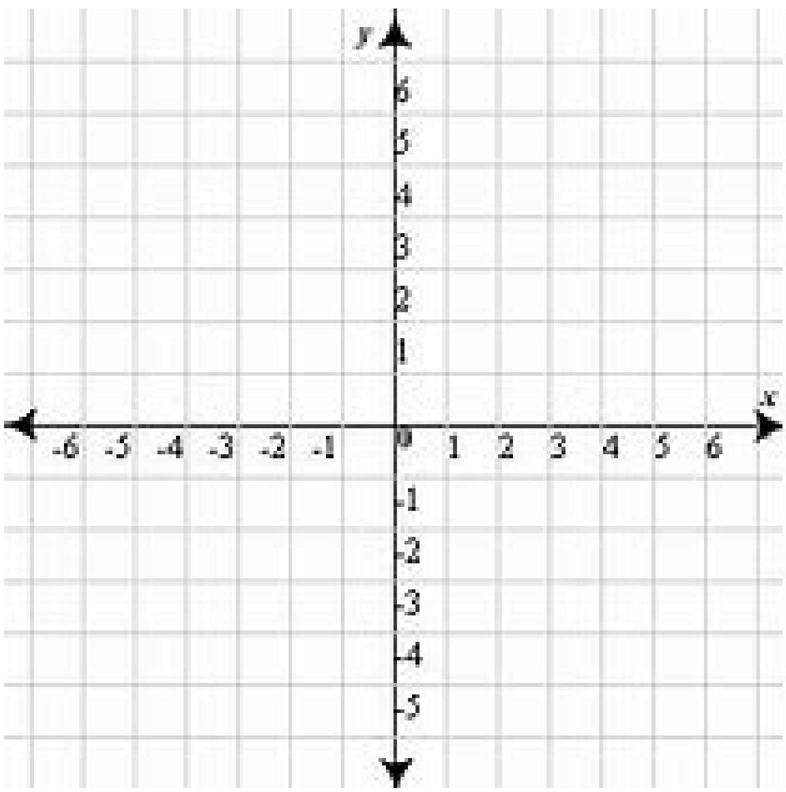
Quadratic Function practice problem

$f(x) = -x^2 - 6x - 1$

Table of Values

X	-6	-5	-4	-3	-2	-1	0	1
F(x)								
Pairs								

Input each number into the equation, do the math and complete the table for f(x). Once done, graph your points and connect it with a line.



Name : ____________________ Score : ____________________

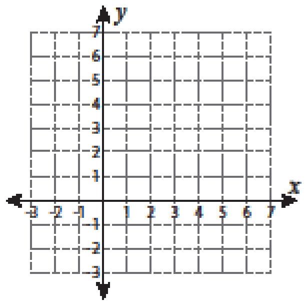
Function Table

Sheet 1

Complete the function table and sketch the graph.

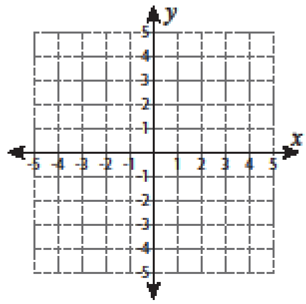
1) $f(x) = x^2 - 6x + 11$

x	1	2	3	4	5
$f(x)$					



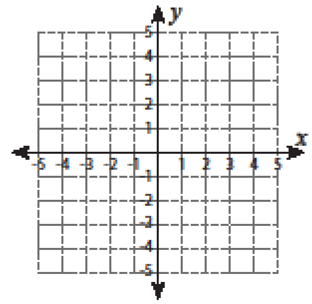
2) $f(x) = -(x + 1)^2 + 3$

x	−3	−2	−1	0	1
$f(x)$					



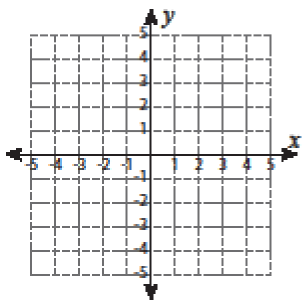
3) $f(x) = x^2 + 4x + 1$

x	−4	−3	−2	−1	0
$f(x)$					



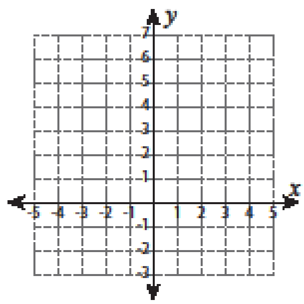
4) $f(x) = x^2 - 2$

x	−2	−1	0	1	2
$f(x)$					



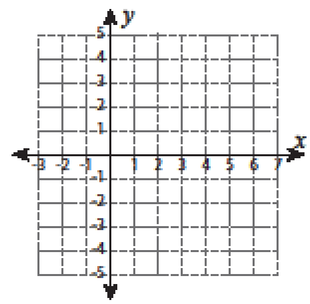
5) $f(x) = (x - 1)^2 + 1$

x	−1	0	1	2	3
$f(x)$					



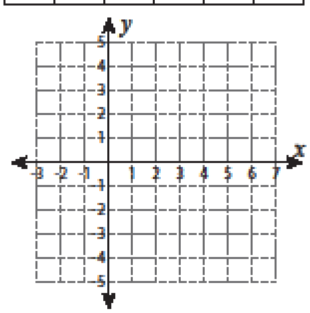
6) $f(x) = x^2 - 8x + 16$

x	2	3	4	5	6
$f(x)$					



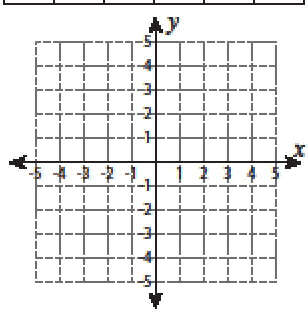
7) $f(x) = -x(x - 4)$

x	0	1	2	3	4
$f(x)$					



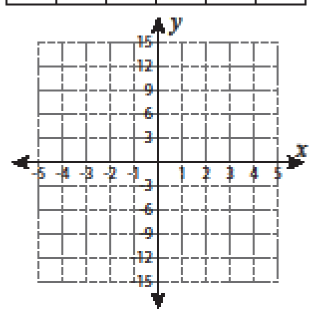
8) $f(x) = -x^2 - 4x - 2$

x	−4	−3	−2	−1	0
$f(x)$					



9) $f(x) = 3x^2$

x	−2	−1	0	1	2
$f(x)$					



Quadratic Equations

This is the standard form of a quadratic equation. $ax^2 + bx + c = 0$

a, b, c going to be known numbers, coefficients.

This is the quadratic formula used to solve quadratic equations. Try and read it!

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

Let's see how this works.

Problem: $5x^2 + 6x + 1 = 0$. Notice that this equation follows the standard from shown above.

Therefore, we have our a, b, and c. substitute the proper numbers for a, b, c.

a = 5

b = 6

c =1

$$x = \frac{-6 \pm \sqrt{6^2 - 4(5)(1)}}{2(5)}$$

$$x = \frac{-6 \pm \sqrt{36 - 20}}{10}$$

$$x = \frac{-6 \pm \sqrt{16}}{10}$$

$$x = \frac{-6 \pm 4}{10}$$

Here we can split this into two problems because it is -6 plus or minus.

$$x = \frac{-6 + 4}{10} \qquad x = \frac{-6 - 4}{10}$$

$$x = -\frac{1}{5} \qquad x = -1$$

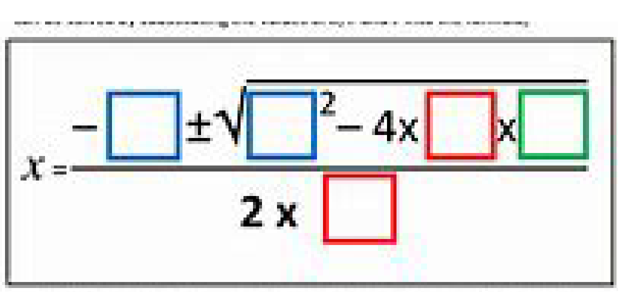
Your Turn

$2x^2 + 3x - 20$ =

a =

b =

c =



Kuta Software - Infinite Algebra 1 Name____________________

Using the Quadratic Formula

Date________________ Period____

Solve each equation with the quadratic formula.

1) $m^2 - 5m - 14 = 0$

2) $b^2 - 4b + 4 = 0$

3) $2m^2 + 2m - 12 = 0$

4) $2x^2 - 3x - 5 = 0$

5) $x^2 + 4x + 3 = 0$

6) $2x^2 + 3x - 20 = 0$

7) $4b^2 + 8b + 7 = 4$

8) $2m^2 - 7m - 13 = -10$

Quadradic Function word problems

Instructions: Use a table to determine the correct answers

1. A fire work rocket is launched off a hill above a lake. The rocket will fall into the lake after it has reached its maximum height. Given the following function, $f(x) = -16x^2 + 64x + 80$,
   a. 160 ft
   b. 120 ft
   c. 90
   d. 144 ft

2. You are a world class fast ball pitcher. You will be tossing a ball straight up into the air. You are 6 feet tall so when you release the ball, it will be 9 feet off the ground. You will use -16 for the force of gravity acting on the ball and the speed of the ball will be 90 miles an hour. Given these numbers, and using a table, determine the maximum height the ball will reach in 4.4 seconds. Your function is $f(x) = -16x^2 + 90x + 9$

CONGRATUALTIONS: YOU HAVE FINISHED THE BOOK.

Answer Sheets

Order of Operations

Solve each expression using the correct order of operations

$\mathbf{10 - 3^2 \div 9}$

9

$\mathbf{7^2 \div (4 + 3)}$

7

$\mathbf{(6 + 2^2) \times 10}$

100

$\mathbf{(4^3 - 10) \div 6}$

9

$\mathbf{9^2 \div (4 + 5)}$

9

$\mathbf{10 + 8 - 6^2 \div (3^2\ x\ 4)}$

17

12 - 3 + 5 x $(\mathbf{6^2 \div 2})$

99

$\mathbf{8 \div (10 - 9)^3 \times 7 + 4^2}$

72

$\mathbf{(8 + 5^2)\boldsymbol{x}((9 - 7)^2 \div 2)}$

66

$\mathbf{\big(10\ x\ (6 + 4)\big) \div (2^3 - 7)^2}$

100

Infinite Algebra 1 Name____________________________

One-Step Equations

Date_______________ Period____

Solve each equation.

1) $26 = 8 + v$

$\{18\}$

2) $3 + p = 8$

$\{5\}$

3) $15 + b = 23$

$\{8\}$

4) $-15 + n = -9$

$\{6\}$

5) $m + 4 = -12$

$\{-16\}$

6) $x - 7 = 13$

$\{20\}$

7) $m - 9 = -13$

$\{-4\}$

8) $p - 6 = -5$

$\{1\}$

9) $v - 15 = -27$

$\{-12\}$

10) $n + 16 = 9$

$\{-7\}$

11) $-104 = 8x$

$\{-13\}$

12) $14b = -56$

$\{-4\}$

13) $-6 = \frac{b}{18}$

$\{-108\}$

14) $10n = 40$

$\{4\}$

Algebra 1

Two-Step Equations Practice

Solve each equation.

1) $3 + 5r = -47$

-10

2) $-5 + \frac{n}{3} = -8$

-9

3) $-53 = 3 - 8n$

7

4) $\frac{b}{2} - 2 = 0$

4

5) $-10x + 6 = -74$

8

6) $\frac{m}{9} - 7 = -8$

-9

7) $3 - 5v = -22$

5

8) $9 + \frac{r}{6} = 7$

-12

9) $-8 = -3 + \frac{m}{3}$

-15

10) $7 = \frac{x}{9} + 8$

-9

CLASSWORK - Combining Like Terms & Distributive Property

Combine like terms to simplify each expression.

1) $-4x + 5x$ x

2) $1 + 5v + v - 6$ $-5 + 6v$

3) $4n + 4 + 1 + 3n$ $7n + 5$

4) $11a + 11a$ $22a$

5) $-2x - 8 - 7x + 2$ $-9x - 6$

6) $7v + 6v$ $13v$

7) $-8x - 10x$ $-18x$

8) $6 - 7n - 2n - 8$ $-2 - 9n$

9) $2k - k$ k

10) $-p - 11 + 3$ $-p - 8$

11) $9n + 3n$ $12n$

12) $12x + 11 - 4$ $12x + 7$

Use Distributive Property.

13) $3(-7 - 8n)$ $-21 - 24n$

14) $-8(1 + 5m)$ $-8 - 40m$

15) $8(r + 1)$ $8r + 8$

16) $8(7x + 8)$ $56x + 64$

17) $2(6n - 8)$ $12n - 16$

18) $-3(8 - b)$ $-24 + 3b$

19) $-5(8v - 2)$ $-40v + 10$

20) $-2(x - 5)$ $-2x + 10$

21) $-(3a - 3)$ $-3a + 3$

22) $-2(7 - 2n)$ $-14 + 4n$

23) $-8(5 - 3v)$ $-40 + 24v$

24) $-7(6x - 3)$ $-42x + 21$

First, use Distributive Property, then Combine Llike Terms to simplify each expression.

25) $-n + 4(n + 1)$

$3n + 4$

26) $-3(1 - 3x) + 2x$

$-3 + 11x$

27) $-2(-3k + 4) - 7$

$6k - 15$

28) $-3p - (-8 + 4p)$

$-7p + 8$

29) $-4 + 6(-4x + 3)$

$14 - 24x$

30) $3n + 3(1 + 8n)$

$27n + 3$

31) $-2 + 5(4 + 3r)$

$18 + 15r$

32) $-1 + 3(m + 4)$

$11 + 3m$

33) $-(-n + 2) - 2n$

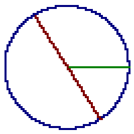
$-n - 2$

34) $-3(5 + 2x) - 7$

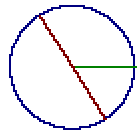
$-22 - 6x$

Circumference and Area of Circles (A) Answers

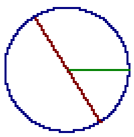
Find the circumference and area of each circle to one decimal place.



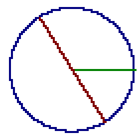
d = 7.9 cm
C = 24.8 cm
A = 49 sq. cm



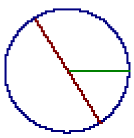
d = 6.3 cm
C = 19.8 cm
A = 31.2 sq. cm



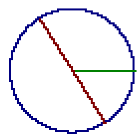
r = 7.3 cm
C = 45.9 cm
A = 167.4 sq. cm



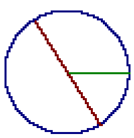
d = 5.5 cm
C = 17.3 cm
A = 23.8 sq. cm



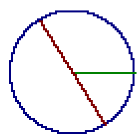
d = 9.5 mm
C = 29.8 mm
A = 70.9 sq. mm



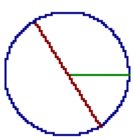
r = 1 yd
C = 6.3 yd
A = 3.1 sq. yd



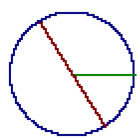
r = 9.7 m
C = 60.9 m
A = 295.6 sq. m



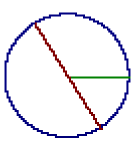
d = 7 m
C = 22 m
A = 38.5 sq. m



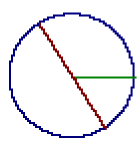
r = 0.5 m
C = 3.1 m
A = 0.8 sq. m



r = 2.4 cm
C = 15.1 cm
A = 18.1 sq. cm



d = 0.9 mi
C = 2.8 mi
A = 0.6 sq. mi

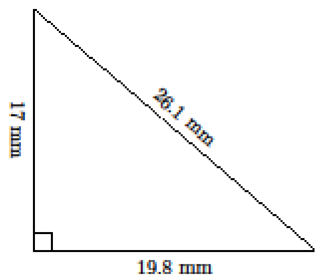


r = 8 in
C = 50.3 in
A = 201.1 sq. in

Perimeter and Area of Triangles (A) Answers

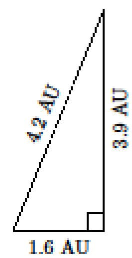
Calculate the perimeter and area for each triangle.

1.



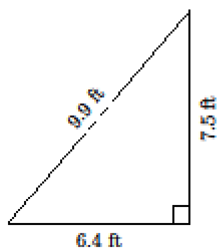
P = 62.9 mm
A = 168.3 mm^2

2.



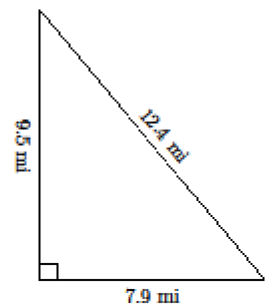
P = 9.7 AU
A = 3.12 AU^2

3.



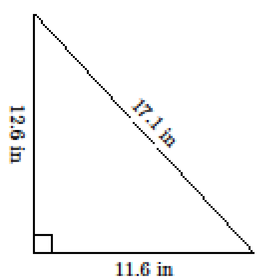
P = 23.8 ft
A = 24 ft^2

4.



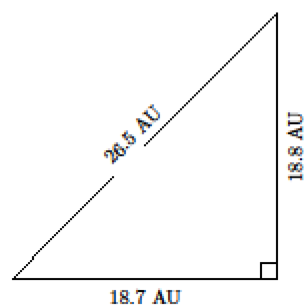
P = 29.8 mi
A = 37.525 mi^2

5.



P = 41.3 in
A = 73.08 in^2

6.



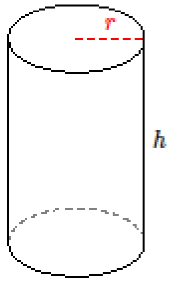
P = 64 AU
A = 175.78 AU^2

Area and Volume of Cylinders (A) Answers

Calculate the surface area and volume for each cylinder.

Surface Area $= (\pi r^2 \times 2) + (\pi d \times h)$ Volume $= \pi r^2 \times h$ $d = 2r$

1.

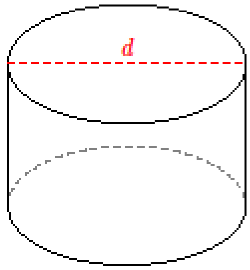


$r = 1.2$ km $h = 3.6$ km

Surface Area $= 36.19$ km^2

Volume $= 16.29$ km^3

2.

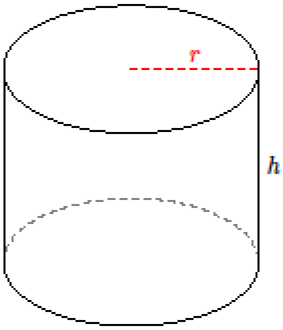


$d = 12.6$ cm $h = 7.5$ cm

Surface Area $= 546.26$ cm^2

Volume $= 935.17$ cm^3

3.

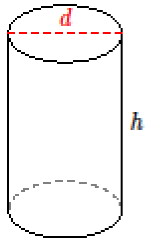


$r = 18$ ft $h = 27.2$ ft

Surface Area $= 5112$ ft^2

Volume $= 27{,}686.23$ ft^3

4.



$d = 12$ m $h = 18.6$ m

Surface Area $= 927.4$ m^2

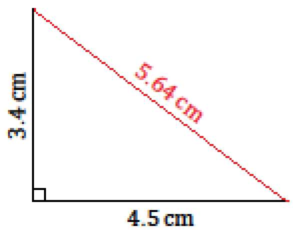
Volume $= 2103.61$ m^3

Pythagorean Theorem (A) Answers

Name: __________________ Date: ____________

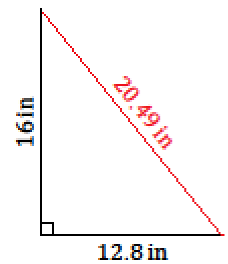
Calculate the missing side measurement using $a^2 + b^2 = c^2$.

1.



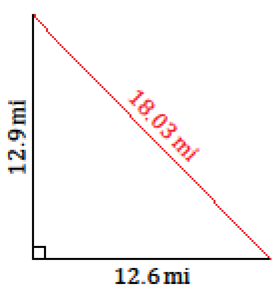
$4.5^2 + 3.4^2 = c^2$
$c = \sqrt{20.25 + 11.56}$
$c = 5.64$ cm

2.



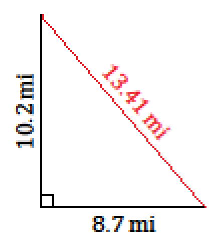
$12.8^2 + 16^2 = c^2$
$c = \sqrt{163.84 + 256}$
$c = 20.49$ in

3.



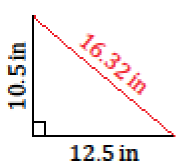
$12.6^2 + 12.9^2 = c^2$
$c = \sqrt{158.76 + 166.41}$
$c = 18.03$ mi

4.



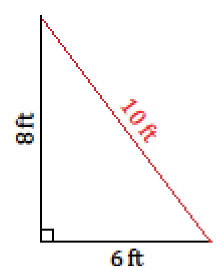
$8.7^2 + 10.2^2 = c^2$
$c = \sqrt{75.69 + 104.04}$
$c = 13.41$ mi

5.



$12.5^2 + 10.5^2 = c^2$
$c = \sqrt{156.25 + 110.25}$
$c = 16.32$ in

6.



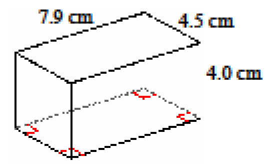
$6^2 + 8^2 = c^2$
$c = \sqrt{36 + 64}$
$c = 10$ ft

Volume and Surface Area of Rectangular Prisms Answer (A)

Instructions: Find the volume and surface area for each rectangular prism.

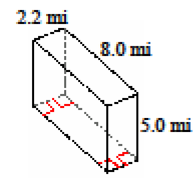
Formula: Volume (V) = *lwh*, Surface Area (A) = 2*(lw+wh+lh)*

1)



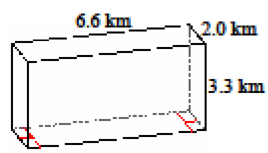
V = 7.9x4.5x4.0 = 142.2 cm^3
A = 2x((7.9x4.5)+(4.5x4.0)+(7.9x4.0)) = 170.3 cm^2

2)



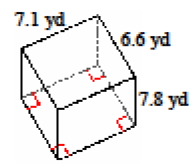
V = 8.0x2.2x5.0 = 88.0 mi^3
A = 2x((8.0x2.2)+(2.2x5.0)+(8.0x5.0)) = 137.2 mi^2

3)



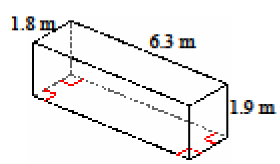
V = 6.6x2.0x3.3 = 43.6 km^3
A = 2x((6.6x2.0)+(2.0x3.3)+(6.6x3.3)) = 83.2 km^2

4)



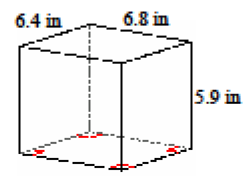
V = 7.1x6.6x7.8 = 365.5 yd^3
A = 2x((7.1x6.6)+(6.6x7.8)+(7.1x7.8)) = 307.4 yd^2

5)



V = 6.3x1.8x1.9 = 21.5 m^3
A = 2x((6.3x1.8)+(1.8x1.9)+(6.3x1.9)) = 53.5 m^2

6)



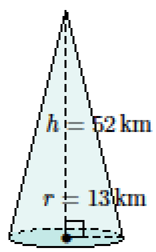
V = 6.8x6.4x5.9 = 256.8 in^3
A = 2x((6.8x6.4)+(6.4x5.9)+(6.8x5.9)) = 242.8 in^2

Surface Area and Volume of Cones (A) Answers

Calculate the surface area and volume for each cone.

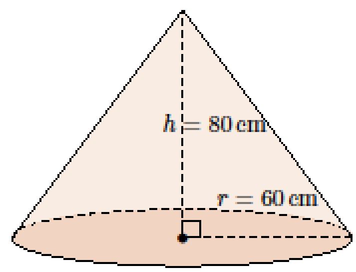
$$\text{Surface Area} = \pi r(r + \sqrt{h^2 + r^2}) \quad \text{Volume} = \pi r^2 \frac{h}{3}$$

1.



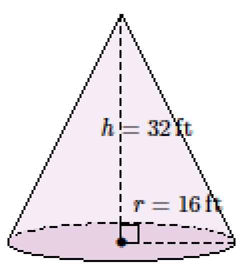
Surface Area: 2720 km^2
Volume: 9203 km^3

2.



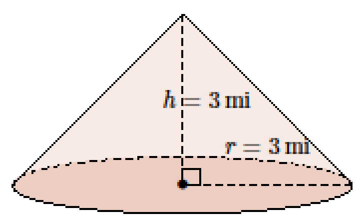
Surface Area: 30,159 cm^2
Volume: 301,593 cm^3

3.



Surface Area: 2603 ft^2
Volume: 8579 ft^3

4.



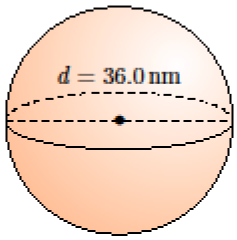
Surface Area: 68 mi^2
Volume: 28 mi^3

Surface Area and Volume of Spheres (A) Answers

Calculate the surface area and volume for each sphere.

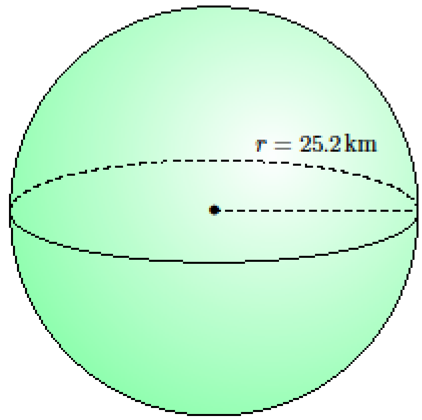
Surface Area $= 4\pi r^2$ Volume $= \frac{4}{3}\pi r^3$

1.



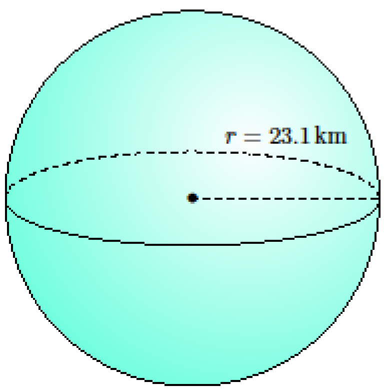
Surface Area: $4071.5\,\mathrm{nm}^2$
Volume: $24{,}429.0\,\mathrm{nm}^3$

2.



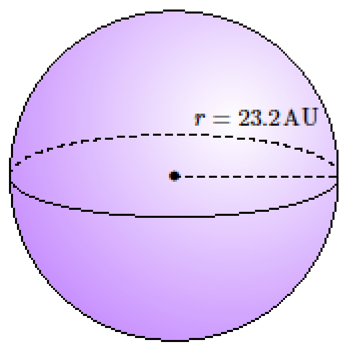
Surface Area: $7980.1\,\mathrm{km}^2$
Volume: $67{,}033.2\,\mathrm{km}^3$

3.



Surface Area: $6705.5\,\mathrm{km}^2$
Volume: $51{,}632.7\,\mathrm{km}^3$

4.



Surface Area: $6763.7\,\mathrm{AU}^2$
Volume: $52{,}306.1\,\mathrm{AU}^3$

Mean, Median, Mode, and Range (A) Answers

Calculate the mean, median, mode, and range of each set of numbers.

1) $\{1, 10, 6, 4, 2, 5, 3, 6, 5, 4\}$

Mean: 4.6
Median: 4.5
Modes: 4, 5, 6
Range: 9

2) $\{5, 10, 10, 6, 8, 6, 3, 7, 5, 3\}$

Mean: 6.3
Median: 6
Modes: 3, 5, 6, 10
Range: 7

3) $\{2, 2, 2, 4, 3, 9, 7, 2, 7, 9\}$

Mean: 4.7
Median: 3.5
Mode: 2
Range: 7

4) $\{6, 3, 5, 7, 3, 8, 4, 3, 9, 3\}$

Mean: 5.1
Median: 4.5
Mode: 3
Range: 6

5) $\{6, 4, 9, 8, 3, 9, 7, 9, 6, 3\}$

Mean: 6.4
Median: 6.5
Mode: 9
Range: 6

6) $\{7, 4, 4, 6, 3, 5, 3, 8, 5, 3\}$

Mean: 4.8
Median: 4.5
Mode: 3
Range: 5

7) $\{8, 8, 7, 8, 8, 3, 4, 6, 8, 7\}$

Mean: 6.7
Median: 7.5
Mode: 8
Range: 5

8) $\{3, 4, 7, 8, 3, 4, 8, 8, 5, 7\}$

Mean: 5.7
Median: 6
Mode: 8
Range: 5

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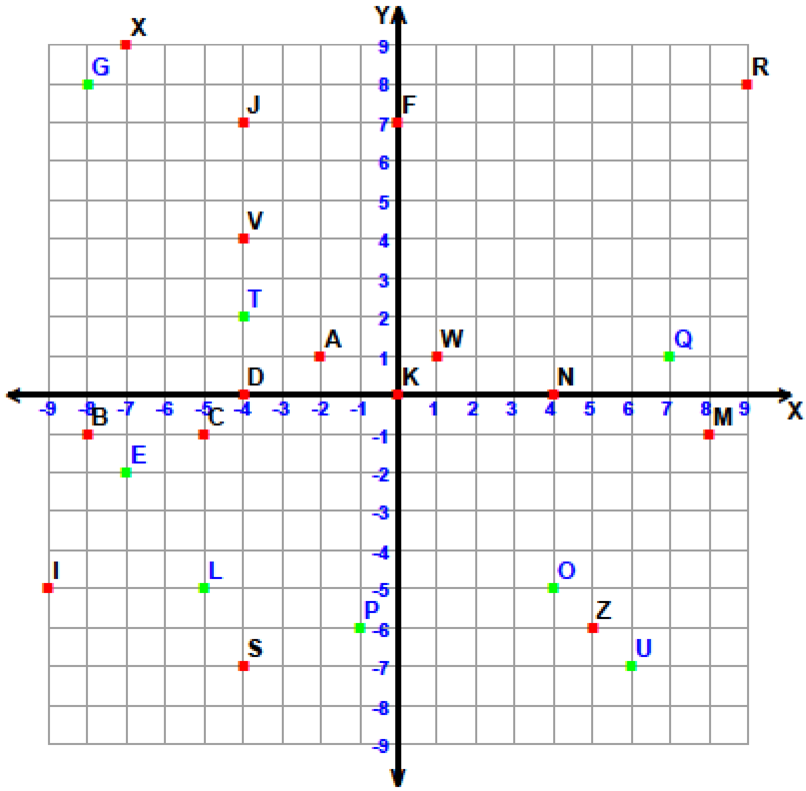
Teacher : ______________________ Date : __________

Four Quadrant Ordered Pairs



Tell what point is located at each ordered pair.

1) (+0,+0) K	3) (-4,+0) D	5) (-4,+4) V	7) (+8,-1) M
2) (-4,-7) S	4) (+5,-6) Z	6) (-5,-1) C	8) (-8,-1) B

Write the ordered pair for each given point.

9) F (+0,+7)	11) W (+1,+1)	13) I (-9,-5)	15) A (-2,+1)
10) J (-4,+7)	12) N (+4,+0)	14) R (+9,+8)	16) X (-7,+9)

Plot the following points on the coordinate grid.

17) Q (+7,+1)	19) E (-7,-2)	21) G (-8,+8)	23) L (-5,-5)
18) O (+4,-5)	20) T (-4,+2)	22) U (+6,-7)	24) P (-1,-6)

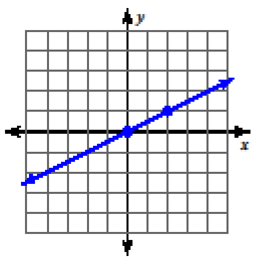
Kuta Software - Infinite Algebra 1 Name______________________________

Finding Slope From a Graph

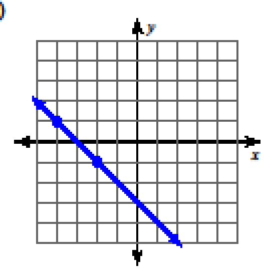
Date________________ Period____

Find the slope of each line.

1) $\frac{1}{2}$

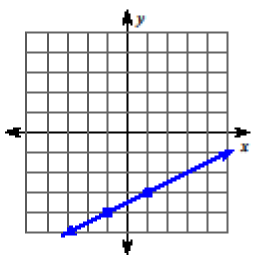


2)

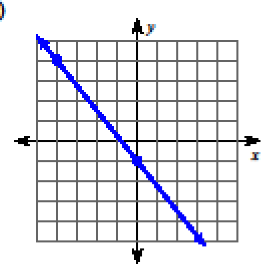


-1

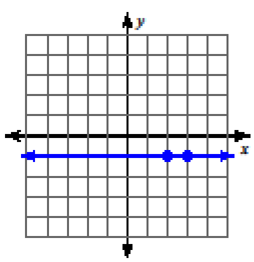
3) $\frac{1}{2}$



4) $-\frac{5}{4}$

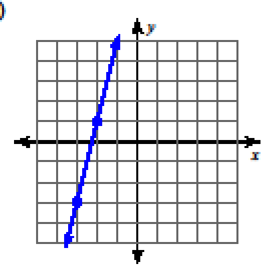


5)



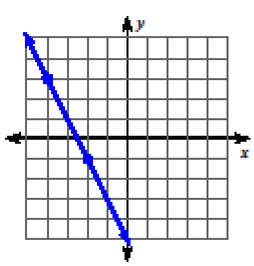
0

6)



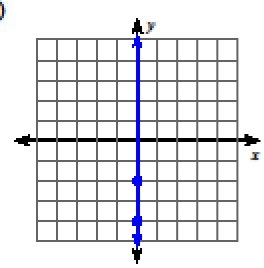
4

7)



-2

8)

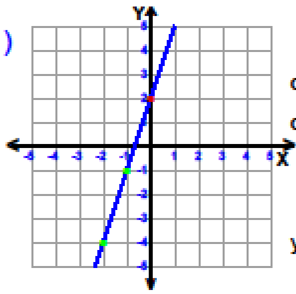


Undefined

Name : ______________________ Score : __________

Teacher : ______________________ Date : __________

Sketch Each Line

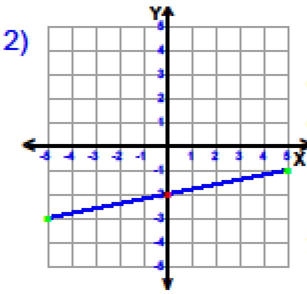
1) 

ordered pair = (-2,-4)

ordered pair = (-1,-1)

3

y-intercept = 2

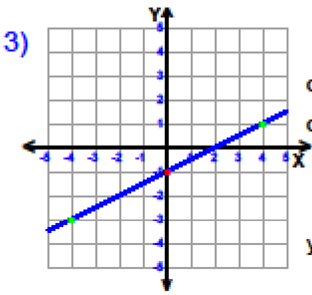
2) 

ordered pair = (5,-1)

ordered pair = (-5,-3)

$\frac{1}{5}$

y-intercept = - 2

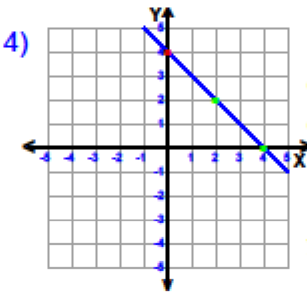
3) 

ordered pair = (-4,-3)

ordered pair = (4,1)

$\frac{1}{2}$

y-intercept = - 1

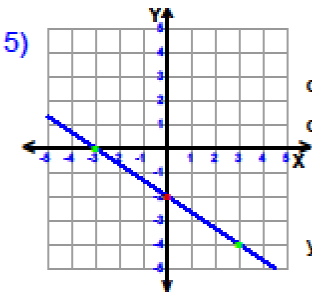
4) 

ordered pair = (2,2)

ordered pair = (4,0)

- 1

y-intercept = 4

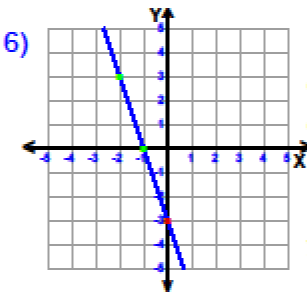
5) 

ordered pair = (3,-4)

ordered pair = (-3,0)

$-\frac{2}{3}$

y-intercept = - 2

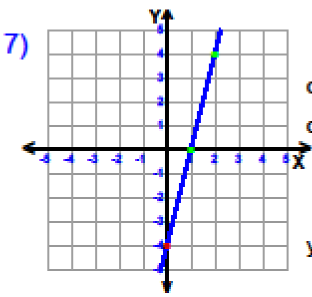
6) 

ordered pair = (-2,3)

ordered pair = (-1,0)

- 3

y-intercept = - 3

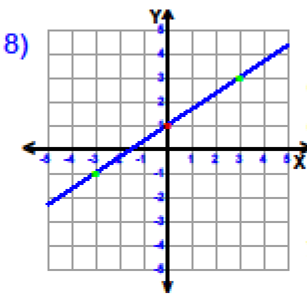
7) 

ordered pair = (2,4)

ordered pair = (1,0)

4

y-intercept = - 4

8) 

ordered pair = (3,3)

ordered pair = (-3,-1)

$\frac{2}{3}$

y-intercept = 1

Kuta Software - Infinite Algebra 1 Name____________________

Finding Slope From Two Points

Date________________ Period____

Find the slope of the line through each pair of points.

1) $(19, -16), (-7, -15)$

$-\frac{1}{26}$

2) $(1, -19), (-2, -7)$

-4

3) $(-4, 7), (-6, -4)$

$\frac{11}{2}$

4) $(20, 8), (9, 16)$

$-\frac{8}{11}$

5) $(17, -13), (17, 8)$

Undefined

6) $(19, 3), (20, 3)$

0

7) $(3, 0), (-11, -15)$

$\frac{15}{14}$

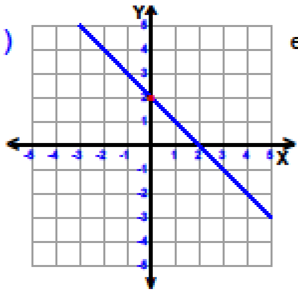
8) $(19, -2), (-11, 10)$

$-\frac{2}{5}$

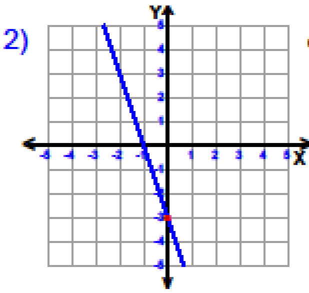
Name : ______________________ Score : __________

Teacher : ______________________ Date : __________

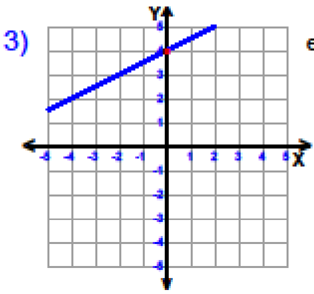
Sketch Each Line

1) 

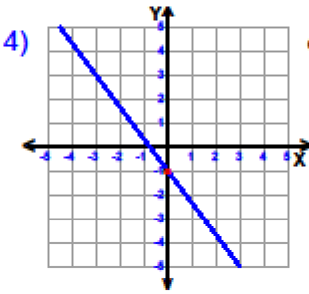
equation $y = -x + 2$

2) 

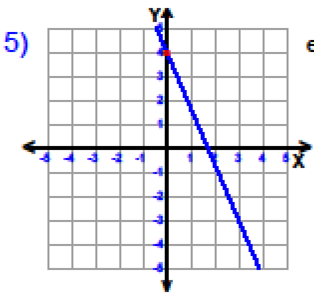
equation $y = -3x - 3$

3) 

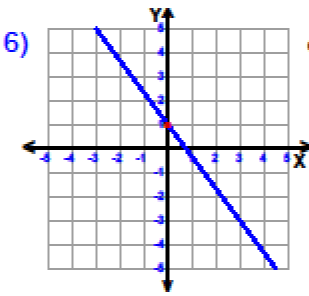
equation $y = \frac{1}{2}x + 4$

4) 

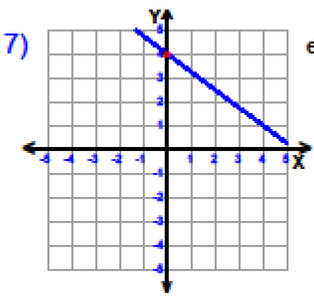
equation $y = -\frac{4}{3}x - 1$

5) 

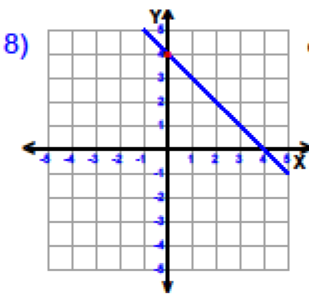
equation $y = -\frac{7}{3}x + 4$

6) 

equation $y = -\frac{4}{3}x + 1$

7) 

equation $y = -\frac{3}{4}x + 4$

8) 

equation $y = -x + 4$

Answers to 5.5 Point-Slope Form (ID: 1)

1) $y - 3 = 2(x - 2)$	2) $y + 2 = 2(x + 2)$	3) $y + 5 = \frac{5}{4}(x + 4)$	4) $y + 2 = -3(x - 2)$
5) $y + 3 = \frac{1}{4}(x - 4)$	6) $y + 1 = -(x - 1)$	7) $y = -(x + 2)$	8) $y - 2 = \frac{3}{5}(x + 5)$
9) $y - 2 = -\frac{3}{2}(x + 2)$	10) $y - 4 = -9(x + 1)$	11) $y + 5 = -\frac{3}{2}x$	12) $y + 2 = -\frac{7}{2}(x - 2)$
13) $y - 4 = 7(x - 1)$	14) $y + 4 = \frac{2}{5}(x + 5)$	15) $y - 5 = -\frac{1}{3}(x + 3)$	16) $y + 1 = -3(x - 1)$
17) $y - 1 = \frac{2}{5}(x + 5)$	18) $y - 2 = 0$	19) $y + 5 = 4(x + 2)$	20) $y + 1 = -\frac{3}{2}(x - 2)$

Kuta Software - Infinite Algebra 1 Name________________________

Two-Step Inequalities

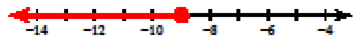
Date________________ Period____

Solve each inequality and graph its solution.

1) $2x + 4 \geq 24$

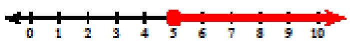
$x \geq 10$

2) $\frac{m}{3} - 3 \leq -6$



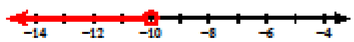
$m \leq -9$

3) $-3(p + 1) \leq -18$



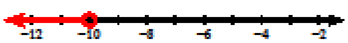
$p \geq 5$

4) $-4(-4 + x) > 56$



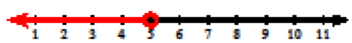
$x < -10$

5) $-b - 2 > 8$



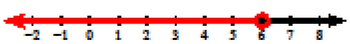
$b < -10$

6) $-4(3 + n) > -32$



$n < 5$

7) $4 + \frac{n}{3} < 6$



$n < 6$

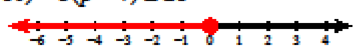
8) $-3(r - 4) \geq 0$

$r \leq 4$

9) $-7x + 7 \leq -56$

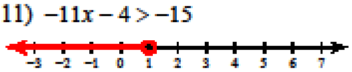
$x \geq 9$

10) $-3(p - 7) \geq 21$



$p \leq 0$

11) $-11x - 4 > -15$



$x < 1$

12) $\frac{-9 + a}{15} > 1$

$a > 24$

Name : ____________________ **Answer key** Score : ____________________

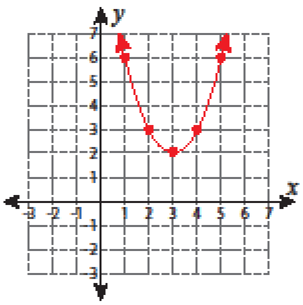
Function Table

Sheet 1

Complete the function table and sketch the graph.

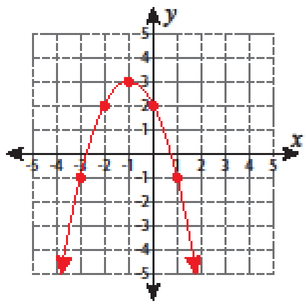
1) $f(x) = x^2 - 6x + 11$

x	1	2	3	4	5
$f(x)$	6	3	2	3	6



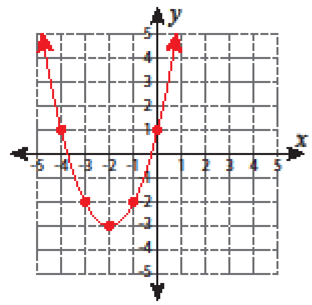
2) $f(x) = -(x + 1)^2 + 3$

x	−3	−2	−1	0	1
$f(x)$	−1	2	3	2	−1



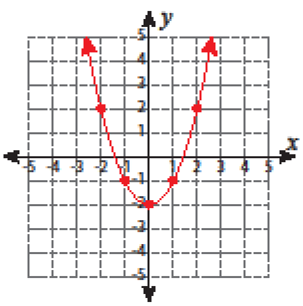
3) $f(x) = x^2 + 4x + 1$

x	−4	−3	−2	−1	0
$f(x)$	1	−2	−3	−2	1



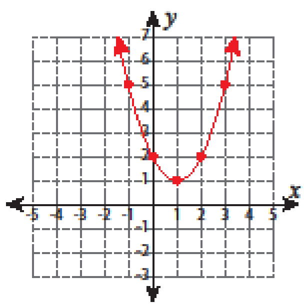
4) $f(x) = x^2 - 2$

x	−2	−1	0	1	2
$f(x)$	2	−1	−2	−1	2



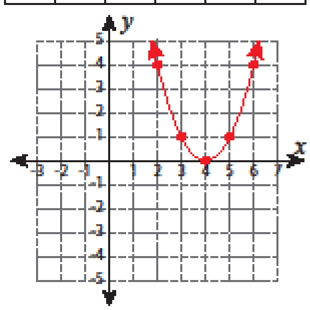
5) $f(x) = (x - 1)^2 + 1$

x	−1	0	1	2	3
$f(x)$	5	2	1	2	5



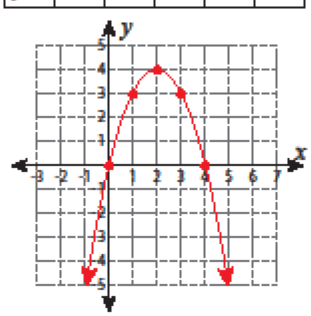
6) $f(x) = x^2 - 8x + 16$

x	2	3	4	5	6
$f(x)$	4	1	0	1	4



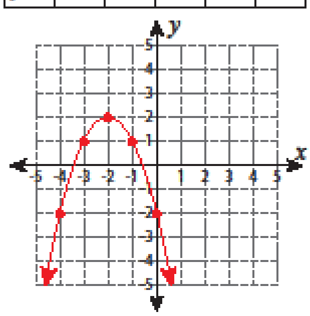
7) $f(x) = -x(x - 4)$

x	0	1	2	3	4
$f(x)$	0	3	4	3	0



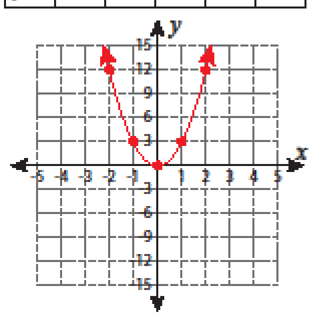
8) $f(x) = -x^2 - 4x - 2$

x	−4	−3	−2	−1	0
$f(x)$	−2	1	2	1	−2



9) $f(x) = 3x^2$

x	−2	−1	0	1	2
$f(x)$	12	3	0	3	12



Kuta Software - Infinite Algebra 1 Name___________________________

Using the Quadratic Formula

Date_______________ Period____

Solve each equation with the quadratic formula.

1) $m^2 - 5m - 14 = 0$

$\{7, -2\}$

2) $b^2 - 4b + 4 = 0$

$\{2\}$

3) $2m^2 + 2m - 12 = 0$

$\{2, -3\}$

4) $2x^2 - 3x - 5 = 0$

$\left\{\frac{5}{2}, -1\right\}$

5) $x^2 + 4x + 3 = 0$

$\{-1, -3\}$

6) $2x^2 + 3x - 20 = 0$

$\left\{\frac{5}{2}, -4\right\}$

7) $4b^2 + 8b + 7 = 4$

$\left\{-\frac{1}{2}, -\frac{3}{2}\right\}$

8) $2m^2 - 7m - 13 = -10$

$\left\{\frac{7 + \sqrt{73}}{4}, \frac{7 - \sqrt{73}}{4}\right\}$

Answers for word problems

Surface Area Volume Applications Page 25

1) 70.65 cm^2
2) 200 in^3
3) $700in^2$
4) 28.26
5) 72 and 538.82lbs
6) 25.12 ft squared
7) 26.62cubed and 165ft squared
8) 2.355

Mean, mode, median and range page 28

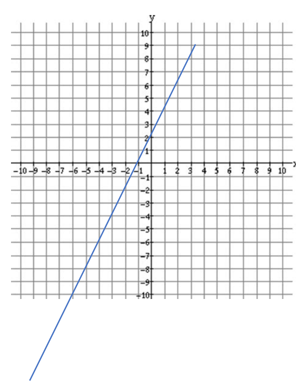
1) Mean 98.14, median 99
2) Mean 1500, median 1500
3) Mean 28.28, median 29.5, mode 36, range 28
4) 4 pts
5) $5.97

Inequalities .page 44

1) c
2) $1.50x + 3 \leq 10$
3) $20x + 125 \leq 400$
4) $82x + 3000 \leq 5000$
5) $3.5x + 625 \leq 800$

Coordinate plain page 37

1) -1,
2) Graph
3) Y=2x+5
4) Ordered pairs (1, 7) (2, 9) (3, 11) (4, 14)



Quadratic Function Page 51

1) D 144ft
2) 95.24 ft.