# GED Prep

## Basic Math: 1

# BASIC MATH

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First Edition

GED

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# Introduction

MATH, yes, math is a **four-letter** word. Let's start off on the right foot. I did not like math when I was in school. Hated it and I was terrible at it. I was like this well into my adult years. I passed math courses in college by the skin of my teeth.

"Why are you teaching math now and why are you writing this instruction booklet if you didn't like math," you may ask. This is a good question and is worth answering. I like teaching math. It was from being asked to teach a math class that forced me to tackle my math fear and shortcomings. I discovered that I like teaching math to people who are like I was, lacking confidence in their skills, not being comfortable with math, maybe even not liking it and who have to overcome this mountain in order to achieve their goals.

## First things first

Numbers are nothing to be afraid of. The systems and concepts in math are nothing to be fearful of. As I like to put it, math is made up of two things, **vocabulary and process**.

***We must memorize both in order to be successful!***

Math is a series of steps/processes. Each concept has its own processes. As we learn new concepts, we must remember the old ones. Math is like building a wall out of bricks, it is layer after layer. We cannot miss a brick.

**Rule #1** do not move forward until you have mastered the vocabulary and process of the concept you are working on. IE: If you are working on multiplication, then memorize the times table, yes, you must. Memorize the steps in multiplying many digits. All of this will be discussed later in the multiplication section.

**Rule#2**, if you do not know or understand, seek answers. There are many possibilities, YouTube videos, khan academy videos, websites, instructors and tutors are all possibilities. See and ask for help!

**Rule#3**, the most important, believe in yourself. Believe you can learn. Never give up. You are competing with no one other than yourself.

**Rule#4**, set goals, small, achievable goals that you can measure, and that you can count as wins each time you achieve one.

**Rule#5**, the more effort you put in, the more you will get out. Cut out blocks of time, 15, 30, 45 minutes every day or every other day. Maybe a hour a day or every other day but do work at home.

**Rule#6**, do not fear math. It is nothing but numbers and basic.

## Place Value

Let's get started. The first thing you need to understand is place value. Each whole number has a certain value. Ones, tens, hundreds, thousands and so on. You use them all the time when you use money or count things.

Let's look at this big number; 210,123,456,789. Notice that each number has a home within the chart below.

# Place Value Chart

| Hundred Billions | Ten Billions | Billions | | Hundred Millions | Ten Millions | Millions | | Hundred Thousands | Ten Thousands | Thousands | | Hundreds | Tens | Ones |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 1 | 0 | , | 1 | 2 | 3 | , | 4 | 5 | 6 | , | 7 | 8 | 9 |

The Value of Place

As stated, each number has a home, even zero.

**Vocabulary**: *Place value refers to the value of each number/digit.*

***Looking at the huge number in the chart and pretend we are talking about dollars.***

➢ We see that 9 is in the ones place. We have $9 dollars.

➢ The 8 is in the tens position, so we have $80 dollars, but let's not forget we also have 9 dollars too. Together we have $89. That's 80 + 9.

➢ The 7 is in the hundreds place/position so we have $700 + $80 + $9, or $789 and so on.

  o **Vocabulary:** *This is called Expanded Form.*

➢ We can also write it out, "expand it" this way too.

  o $7 \times 100 + 8 \times 10 + 9$. This still comes out to 789 when you do the math.

  o **Vocabulary**: *This is called Expanded Notation.*

  o **Vocabulary**: *When we put the numbers back together from the expanded form or expanded notion, this is called writing the number in **Standard Form**.*

➢ Now it's your turn, ***what is the place value in the chart for the 4, 5, 6?***

  o Write them out like we did with the 789 = 700+80+9.

  o Can you write them out as 789 = $7 \times 100 + 8 \times 10 + 9$?

| Ten Thousands | Thousands | Hundreds | Tens | Ones |
|---|---|---|---|---|
|  |  |  |  |  |

Write the following number into the chart above.

**10,000+ 2000 + 400 + 90 + 5**

***Do the work in the following pages, refer to these pages as necessary.***

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# Write the Numbers in Expanded Form.

1 )   5,535   _____

2 )   4,946   _____

3 )   8,533   _____

4 )   3,151   _____

5 )   6,436   _____

6 )   8,335   _____

7 )   4,654   _____

8 )   4,824   _____

9 )   3,326   _____

10 )   7,716   _____

11 )   1,560   _____

12 )   3,940   _____

13 )   6,729   _____

14 )   1,978   _____

15 )   6,823   _____

# Expanded Notation and standard form

**Write each number in expanded notation.**

1) 933 = _____

2) 192 = _____

3) 299 = _____

4) 507 = _____

5) 542 = _____

6) 156 = _____

7) 819 = _____

8) 607 = _____

9) 145 = _____

10) 110 = _____

**Write Each Number in Standard Form.**

11) _____ = (8 x 100) + (7 x 10) + (3 x 1)

12) _____ = (3 x 100) + (1 x 10) + (5 x 1)

13) _____ = (3 x 100) + (3 x 10) + (1 x 1)

14) _____ = (2 x 100) + (8 x 10) + (5 x 1)

15) _____ = (4 x 100) + (3 x 10) + (8 x 1)

16) _____ = (6 x 100) + (9 x 10) + (8 x 1)

17) _____ = (7 x 100) + (0 x 10) + (5 x 1)

18) _____ = (9 x 100) + (1 x 10) + (6 x 1)

19) _____ = (8 x 100) + (2 x 10) + (8 x 1)

20) _____ = (3 x 100) + (0 x 10) + (7 x 1)

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# Match the Number with the Correct Name.

1 ) _____ 9,318,624      A  Eight Hundred Twenty - Nine

2 ) _____ 1,983          B  One Hundred Thirty - Eight Thousand, Nine Hundred Eighty - Five

3 ) _____ 138,985        C  Six Hundred Seventy - Seven

4 ) _____ 429,148        D  Four Hundred Twenty - Nine Thousand, One Hundred Forty - Eight

5 ) _____ 829            E  Six Thousand, One Hundred Seventy - Two

6 ) _____ 677            F  Eighty - Seven Thousand, Four Hundred Seventy - Five

7 ) _____ 87,475         G  Seven Million, Four Hundred Eighty - Six Thousand, Nine Hundred Seventy - Four

8 ) _____ 6,172          H  Nine Million, Three Hundred Eighteen Thousand, Six Hundred Twenty - Four

9 ) _____ 7,486,974      I  One Thousand, Nine Hundred Eighty - Three

10 ) _____ 18,915        J  Eighteen Thousand, Nine Hundred Fifteen

# Rounding

Rounding can be confusing but there are some simple rules to follow in rounding whole numbers.

1) Understand place value
    A. If you must round, there will be instructions asking you to round to the nearest tens, hundreds, thousands and so on.
2) Locate the number you are being asked to round
    A. Let's call this number the **Target number**.
3) Then, look to the first number to the right
    A. If the number to the right of the **Target number** is 1,2,3,4, then do not change the target number, but all numbers to the right become zero.
    B. If the number to the right of the **Target number** is 5,6,7,8,9, then round the Target number up to the next highest number and all numbers to the right will become zeros.
4) One trick you can use is ask yourself, is it closer to, example: 74, is 74 closer to 70 or 80? It is closer to 70. Is 76 closer to 70 or 80?

**Let's do a few problems:**

*Round 37 to the nearest ten.*

Which number is the target number? We are being asked to round to the nearest ten, which number is in the ten's place? 3. **3, is the target number**.

**Rule:** Look to the right of the target number. Is the number 1, 2, 3, 4 or 5, 6, 7, 8, 9? It is 7. What does the rule above state we do? "ask yourself, is the number closer to 30 or 40?

**Answer**: We round the 3 up to 4, our answer is 40.

Round 452 to the nearest hundred.

1) What is the target number?
    A. Which number is in the hundreds place?
2) Look to the right, is that number 1,2,3,4 or 5,6,7,8,9?
3) Follow the rules.

Round 3295 to the nearest thousands

1) What is the target number?
    A. Which number is in the thousands place?
2) Look to the right, is that number 1,2,3,4 or 5,6,7,8,9?
3) Follow the rules.

> Remember, you can always ask yourself, is the target number closer to 400, or 500,
>
> Or is the target number closer to 3000 or 4000?

# Rounding Practice

Round the following numbers as indicated

    1) Round 876 to the nearest ten

    2) Round 9,875 to the nearest hundred

    3) Round to the nearest ten, 10,843

    4) Round 173,800 to the nearest ten thousand

    5) Round 81 to the nearest ten.

**Vocabulary:** *Estimation, means an educated guess based upon what you know. You do this all time when you are shopping or thinking about buying several things. "Do I have enough money to buy, xy & z?*

***You can use rounding to make it easier to quickly add up amounts. Follow the instructions to answer the questions below.***

Word Problems

    1) If there are 189 papers in a file and Peter puts in 298 more papers, round both to the nearest hundreds and add to discover how many papers will be in the file.

    2) Jackson, Danny and Richards have been helping Grandpa to do yard work during the summer. Jack has earned 394 dollars, Ben has earned 127 dollars, and Rick has earned 222 dollars. How much have they earned approximately all together? Round all numbers to the nearest hundred and add.

## Multiplication

Multiplication is the number one concept you must get under your belt, and sadly, the only way to do it is through memorization. YOU MUST MEMORIZE the times table. Stop depending on the slower, error ridden method of using your fingers or counting. You will be able to move faster and more correctly if you memorize the table.

*Multiplication is simply a faster way of adding.*

**Example**

You and four of your friends go pick apples. Each person picks a basket of 30 apples each. How many apples did you and your friends pick?

This is an easy multiplication problem, but some will stack 30 on top of one another, five high and then add straight down. You can do this, but it takes time and is open to more of a possibility of making a mistake, or you can use multiplication.

| Add | or | Multiply |
|-----|-----|----------|
| 30 | | 30 |
| 30 | | × 5 |
| 30 | | 150 |
| 30 | | |
| +30 | | |
| 150 | | |

## Basic Principles of Multiplication

1) It doesn't matter which number comes first,

    A. Example: $9 \times 8 = 72$, or $8 \times 9 = 72$.

2) Any number multiplied by zero equals zero.

    A. Example: $1000 \times 0 = 0$

3) Any number multiplied by one doesn't change, remains the same.

    A. 1000 apples multiplied by one is still 1000 apples

    B. $1000 \times 1 = 1000$

## Multiplication Table filled out:

Memorize it, repeat: $2 \times 2 = 4$ and so on as many times as needed to memorize table.

| ✗ | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|----|
| 1 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
| 2 | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 |
| 3 | 3 | 6 | 9 | 12 | 15 | 18 | 21 | 24 | 27 | 30 |
| 4 | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 36 | 40 |
| 5 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 |
| 6 | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 |
| 7 | 7 | 14 | 21 | 28 | 35 | 42 | 49 | 56 | 63 | 70 |
| 8 | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 |
| 9 | 9 | 18 | 27 | 36 | 45 | 54 | 63 | 72 | 81 | 90 |
| 10 | 10 | 20 | 30 | 40 | 50 | 60 | 70 | 80 | 90 | 100 |

Your turn. Make as many copies as you need of this table, practice over and over again filling it from memory until you can fill out the whole table from memory!
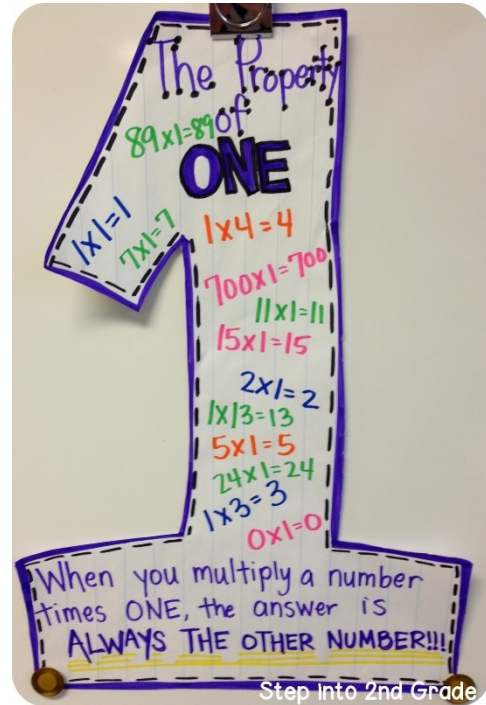
| × | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | | | | | | | | | | |
| 2 | | | | | | | | | | |
| 3 | | | | | | | | | | |
| 4 | | | | | | | | | | |
| 5 | | | | | | | | | | |
| 6 | | | | | | | | | | |
| 7 | | | | | | | | | | |
| 8 | | | | | | | | | | |
| 9 | | | | | | | | | | |
| 10 | | | | | | | | | | |

**Go to www.mathisfun.com click on numbers, then multiplication, find "Math Trainer-Multiplication. Great place to practice over and over and over again.**

Any number times zero is zero
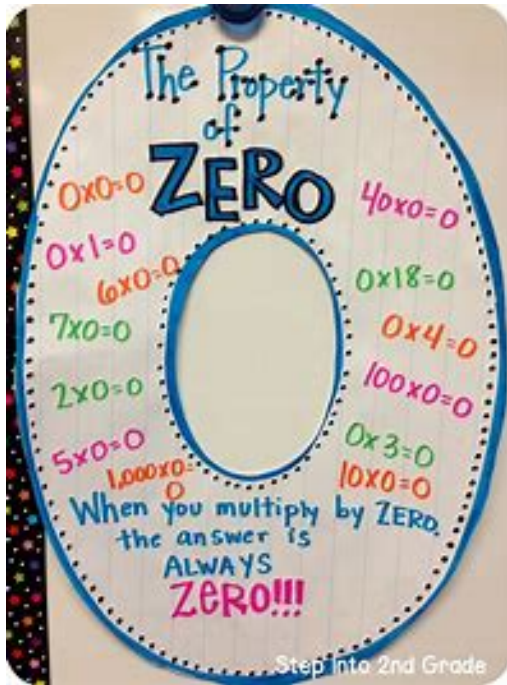
Any number times one is itself





Practice:

$5 \times 0 =$                    $8 \times 1 =$                    $1120 \times 0 =$

$25687 \times 1 =$            $328740 \times 0 =$          $0 \times 1 =$

$1 \times 15 =$                  $1 \times 325 =$

$624 \times 12 =$ All multiplication problems, no matter how big the numbers, is multiplying one digit with another digit at a time. Let's take a look.

$$\frac{x_2^6}{12} \qquad \frac{x_2^2}{4} \qquad \frac{x_2^4}{8} \qquad \text{and the second number} \quad \frac{x_1^6}{6} \qquad \frac{x_1^2}{2} \qquad \frac{x_1^4}{4}$$

Lets add them together; first an important rule, because there are two numbers in 12, we must move 624 over one spot, Or just consider it as 6240.

This is how it should actually look

```
 1248
+6240
 7488
```

**Note: Vocabulary**

The numbers being multiplied, 624, and 12 are called factors.

The answer is called the **product**.

First

```
6 2 4
×  1 2
 1248
```

Next

```
6 2 4
×  1 2
 1248
+ 6240
 7488
```

Add a zero to move it over one space!

**Note**: In this example our second factor 12, has two numbers in it. We moved the product over one space by adding a zero. If the second factor was, let's say, 125, we would repeat the process moving the next product over by two zeros.

Let's see another example but

with three numbers in each factor.

```
  367
x 251
  367
 1835•
734••
92117
```

Note, three numbers, the first dot moves the answer over one space, two dots in the second answer moves it over two spaces.

# Multiplication Facts to 144 (A)

**Find each product.**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5<br>× 8 | 12<br>× 11 | 12<br>× 4 | 1<br>× 6 | 7<br>× 5 | 7<br>× 7 | 5<br>× 11 | 11<br>× 0 | 0<br>× 7 | 0<br>× 8 |
| 11<br>× 8 | 4<br>× 9 | 11<br>× 1 | 2<br>× 1 | 11<br>× 12 | 10<br>× 12 | 7<br>× 8 | 0<br>× 3 | 6<br>× 11 | 9<br>× 3 |
| 5<br>× 6 | 12<br>× 3 | 6<br>× 12 | 9<br>× 3 | 4<br>× 8 | 10<br>× 7 | 12<br>× 1 | 0<br>× 5 | 12<br>× 12 | 6<br>× 5 |
| 5<br>× 4 | 4<br>× 7 | 9<br>× 6 | 6<br>× 2 | 8<br>× 9 | 1<br>× 4 | 4<br>× 11 | 4<br>× 0 | 5<br>× 9 | 1<br>× 9 |
| 7<br>× 11 | 6<br>× 8 | 1<br>× 7 | 0<br>× 6 | 10<br>× 10 | 1<br>× 1 | 2<br>× 8 | 1<br>× 0 | 2<br>× 10 | 2<br>× 4 |
| 4<br>× 12 | 4<br>× 4 | 12<br>× 5 | 11<br>× 11 | 2<br>× 9 | 3<br>× 10 | 1<br>× 3 | 0<br>× 2 | 7<br>× 12 | 2<br>× 11 |
| 0<br>× 12 | 3<br>× 4 | 10<br>× 1 | 2<br>× 7 | 1<br>× 5 | 7<br>× 3 | 4<br>× 6 | 3<br>× 11 | 3<br>× 5 | 8<br>× 10 |
| 7<br>× 5 | 11<br>× 9 | 8<br>× 8 | 9<br>× 10 | 3<br>× 6 | 10<br>× 6 | 6<br>× 5 | 9<br>× 9 | 7<br>× 9 | 0<br>× 10 |
| 2<br>× 3 | 5<br>× 10 | 6<br>× 7 | 4<br>× 5 | 11<br>× 10 | 10<br>× 4 | 6<br>× 6 | 8<br>× 1 | 10<br>× 2 | 9<br>× 12 |
| 8<br>× 12 | 3<br>× 3 | 3<br>× 8 | 10<br>× 6 | 5<br>× 5 | 2<br>× 5 | 2<br>× 12 | 0<br>× 9 | 2<br>× 10 | 2<br>× 2 |

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## 2-Digit by 2-Digit Multiplication (A)

Name: _____

Date: _____

Calculate each product.

| | | | | |
|---|---|---|---|---|
| 44 <br> × 46 | 72 <br> × 19 | 48 <br> × 49 | 13 <br> × 90 | 46 <br> × 16 |
| 61 <br> × 10 | 25 <br> × 55 | 45 <br> × 63 | 97 <br> × 41 | 36 <br> × 56 |
| 48 <br> × 15 | 77 <br> × 88 | 84 <br> × 84 | 59 <br> × 18 | 28 <br> × 25 |
| 81 <br> × 30 | 14 <br> × 57 | 57 <br> × 51 | 34 <br> × 45 | 99 <br> × 92 |

Score: ___/20

## 3-Digit by 3-Digit Multiplication (A)

Name: _____

Date: _____

Calculate each product.

| | | | | |
|---|---|---|---|---|
| 505 <br> × 117 | 651 <br> × 954 | 529 <br> × 784 | 208 <br> × 724 | 948 <br> × 184 |
| 615 <br> × 351 | 881 <br> × 599 | 420 <br> × 702 | 430 <br> × 931 | 634 <br> × 462 |
| 686 <br> × 946 | 983 <br> × 747 | 979 <br> × 209 | 263 <br> × 772 | 137 <br> × 615 |
| 797 <br> × 528 | 619 <br> × 223 | 299 <br> × 135 | 577 <br> × 667 | 445 <br> × 702 |

Score:    /20

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# Taking Apart Word Problems

Word problems are one of those things most people do not like to do. The GED test is almost all word problems making them a hurdle we must learn to get over. The following is a step by step process to do so.

Steps

1) Read the problem
   A. Read it again
2) Identify the numbers
   A. What are the facts/numbers pull them out.
   B. Read the problem again.
3) Determine what the question is asking for
   A. Normally, the question will have a **?** mark at the end, easy to identify.
   B. Read the problem again.
4) Eliminate useless information
   A. Some problems will include useless or distracting information. Eliminate it.
5) Pay attention to the units of measurement being used.
   A. Dollars/cents, days/hours/minutes/seconds, miles/feet/yards, you may have to convert yards to feet, feet to inches, hours to minutes and back again.
6) Decide what operations you will need to do.
   A. Adding/subtracting/multiplying/dividing
   B. Is it geometry?
   C. Equations?
   D. Formula?
   E. All of the above?
7) Do the math
   A. Read the problem again do the math
8) Check
   A. Read the problem again
   B. Go over your math again and again! Watch for simple mistakes.

Debbie works at a widget store. She sold 245 widgets for $15 each. She also sold 25 whatchamacallits for $30 each. She gets paid weekly and earns $100 if she sells more than $500 worth of whatchamacallits. How much money did Debbie sell in widgets?

Apply the rules,

1) What are the numbers here? 245, $15, 25, $30, $100, and $500.

2) What's the question? "How much money did Debbie sell in widgets?"

3) Can we eliminate some of those numbers?

4) Read the problem again.

5) What are units of measurements in the problem?

6) What operation will you do,+, -, ×,÷, all of the above?

7) Do the math

8) Check your answer, reread the problem.

Was your answer,

A) $18775

B) $3675

C) $15000

D) $100

One the next page are some word problems for you to try, follow the steps, always follow the steps.

## Multiplication Word Problems

1) Ellen went to a garage sale to buy chairs. She saw two tables for $45 each. She finds the chairs she wants, each chair cost 15 dollars. How much money did Ellen spend for the 12 chairs she bought?

2) Albert has two snakes. The garden snake is 10 inches long. The boa constrictor is 7 times longer than the garden snake. How long is the boa constrictor?

3) One day, Jennifer went into the room to take a look at her mineral samples. She also had a stone collection, five sets of 8 rocks each. If she has 65 samples of minerals per shelf, and she has a total of 7 shelves, how many mineral samples does she have?

4) Of Jennifer's collection of stones, she had 8 precious stones in her collection which she sold to her friend at the jewelry store which is 5 miles from her house, it will take her an hour to walk there if she cannot get ride, she wants to sell some of her stones. If the stones were sold for $1,785 each, how much money did Jennifer get in total?

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# Division

Division is simply the opposite of multiplication. Division is breaking the number down into smaller parts. Think of it like this. You have $1, you need $0,25 cents to put in a machine. You take the dollar to a cashier and ask the person to break it into quarters. One dollar divided by four is 25 cents. $1 \div 4 = .25$.
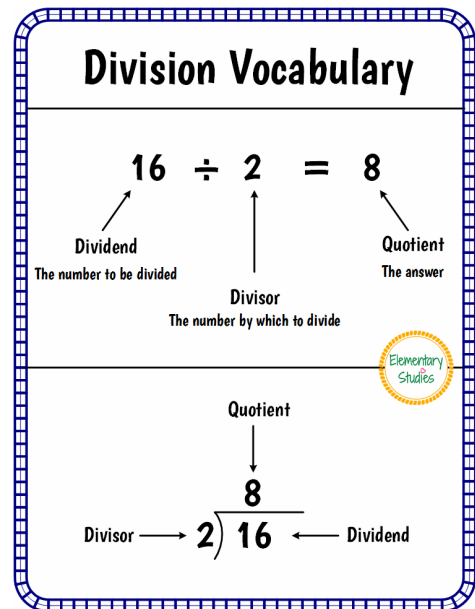
**Vocabulary**:

**Dividend**, the number being split up.

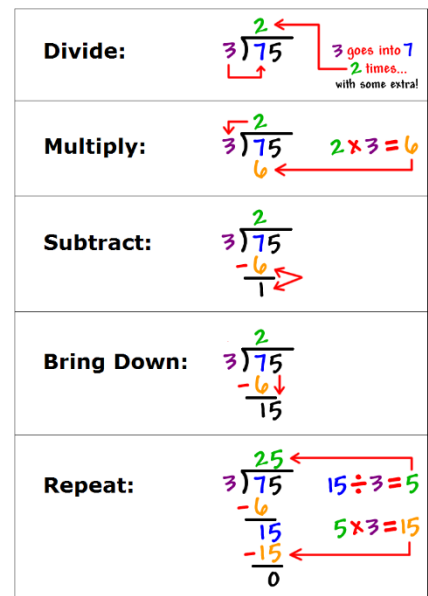**Divisor**, the number of pieces you are splitting it up into.

**Quotient**, simply put, the answer!

**Radical**. The radical is the symbol.



There are up to five steps in division they are

1) Divide

2) Multiply

3) Subtract                **Look at this example**

4) Bring down

5) Repeat (as often as necessary).

**Let's take another look at how these steps work.**

$$64 \div 4$$

$$4\overline{)64}$$ with quotient $16$, subtracting $-4$, bringing down to get $24$, then $-24$ equals $0$.

1) Divide, how many times does the 4 go into 6? 1 time put 1 above the 8.
2) Multiply, 1 × 4 = 4. Put the 4 under the 6 in the radical.
3) Subtract. 6-4 = 2
4) Bring down, bring down the 4 next to the 2,
5) Repeat
   a. Divide, how many times does 4 go into 24? 6 you say? Put 6 above the 4, next to the 1.
   b. Multiply. 6 × 4 = 24, put the answer below the 24 you already have.
   c. Subtract, 24-24 = 0
   d. DONE!

This is the first steps in division, the next step is having leftovers or what is called remainders, and how to turn those into decimal answers like this: 37 ÷ 2. Two ways to answer. 1) With remainders, 18 r1, or with a decimal answer, 18.5. But for now, lets practice what we've learned.

**Rules:  Any number divided by 1 = itself. IE: 18 ÷ 1 = 18.**

**Any number divided by 0, undefined. A zero divided by a number = 0, cannot divide!**

# Division (A)

**Find each quotient.**

$4\overline{)236}$ $\qquad$ $5\overline{)165}$ $\qquad$ $7\overline{)518}$ $\qquad$ $6\overline{)516}$ $\qquad$ $8\overline{)448}$

$8\overline{)720}$ $\qquad$ $8\overline{)304}$ $\qquad$ $9\overline{)774}$ $\qquad$ $3\overline{)162}$ $\qquad$ $5\overline{)285}$

$4\overline{)244}$ $\qquad$ $9\overline{)765}$ $\qquad$ $8\overline{)480}$ $\qquad$ $8\overline{)192}$ $\qquad$ $2\overline{)76}$

$6\overline{)312}$ $\qquad$ $8\overline{)544}$ $\qquad$ $5\overline{)50}$ $\qquad$ $7\overline{)427}$ $\qquad$ $4\overline{)108}$

# Division (A)

**Find each quotient.**

$2\overline{)1054}$ $\qquad$ $5\overline{)4535}$ $\qquad$ $7\overline{)4725}$ $\qquad$ $5\overline{)2050}$ $\qquad$ $5\overline{)2430}$

$9\overline{)3375}$ $\qquad$ $2\overline{)1852}$ $\qquad$ $3\overline{)2622}$ $\qquad$ $4\overline{)1416}$ $\qquad$ $9\overline{)7092}$

$7\overline{)5208}$ $\qquad$ $4\overline{)1872}$ $\qquad$ $9\overline{)2853}$ $\qquad$ $7\overline{)6300}$ $\qquad$ $2\overline{)1288}$
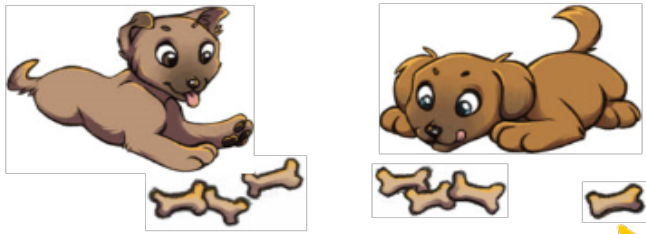
Look at this picture, what do you see? How many dog bones are there? How many dogs?

When the bones are divided between the two dogs, they each get three bones but there is one no one gets, it is a leftover, a remainder.

$7 \div 2 = 3 \text{ R } 1$ ← Remainder

Let's do one: $19 \div 5 =$

Ask yourself, how many times can 5 go into 19, what is your answer? _____

What's the rules of division? Divide, multiply, subtract and bring down, repeat if necessary.

5 goes into 19, three times. $5 \times 3 = 15$.

Subtract, $19 - 15 = 4$.

Can 5 go into 4? _____

How many are left.

Your Turn

$5 \overline{)31}$          $6 \overline{)24}$          $4 \overline{)38}$          $5 \overline{)44}$

$17 \div 8 =$

Time to put on our big boy or girl pants. After a certain point, we no longer use remainders but instead transition into decimal numbers. "WHAT?" Yes, I know, a decimal is a number smaller than 1. Like in dollars. $1.00 is made up of 100 pennies, 20 nickels, 10 dimes, or 4 quarters. $0.99 is less than $1.00 it is smaller than one. 18 nickels, or $0.90, 6 dimes, or $0.60, or 2 quarters, $0.50 are all smaller than one, $1.00. You have been using decimals for a long time.

**Let's look at our problem**

1. Divide: how many times does 8 go into 17? **Answer 2.**

2. Multiply: $8 \times 2 = 16$.

3. Subtract. 17-16 = 1.

4. Bring down: Oops, we have nothing to bring down. But we can add a zero. To do so we put a decimal point behind the 2. In the answer and no we can add a zero to the one.

5. Repeat. Now the rest of your answer is behind the decimal. Our answer is 2.125.

$$
\begin{array}{r}
2.125 \\
8\overline{)17} \\
-16 \\
\hline
10 \\
-8 \\
\hline
20 \\
-16 \\
\hline
40 \\
-40 \\
\hline
0
\end{array}
$$

Let us do another one but step by step. First, you try it and see what answer you get, then we will work the problem step by step.

$$4\overline{)13}$$

Okay, let's work this out.

1. Divide

2. Multiply

3. Subtract

4. Bring down if possible, otherwise add a zero, put

   decimal number after the 3. In the answer.

5. Repeat step one, divide: how many times can 4 go into

   8?  Answer, 2 times, placed behind the decimal.

6. Multiply: 2 times 4 = 8.

7. Subtract

8. Bring down/add a zero, "do not add another decimal point!)

9. Repeat again until you reach zero.

$$3.25$$
$$4\overline{)13}$$
$$\underline{-12}$$
$$10$$
$$\underline{-8}$$
$$20$$
$$-20$$
$$0$$

You try

$$24\overline{)27}$$

*Do the following two practice pages.*

# Division (A)

Find each quotient to two decimal places.

$9)\overline{17}$           $3)\overline{47}$           $9)\overline{86}$           $5)\overline{51}$

$1)\overline{11}$           $3)\overline{37}$           $6)\overline{94}$           $1)\overline{75}$

$8)\overline{36}$           $9)\overline{22}$           $7)\overline{39}$           $4)\overline{13}$

$2)\overline{93}$           $5)\overline{90}$           $6)\overline{83}$           $2)\overline{54}$

Math-Drills.com

# Division (A)

Find each quotient to two decimal places.

$9\overline{)185}$        $1\overline{)264}$        $2\overline{)174}$        $1\overline{)444}$

$2\overline{)128}$        $5\overline{)139}$        $1\overline{)999}$        $3\overline{)848}$

$3\overline{)399}$        $3\overline{)843}$        $3\overline{)300}$        $9\overline{)564}$

# Word Problem Practice

1) The price of corn was $4/bushel on January 2009 and $7/bushel on January 2010. If in 2009 you picked 33 bushels of corn and in 2010, you picked 26 bushels of corn, which year did you earn the most money?

2) A family spent $21,000 of its income on vacations over the last five years. How much did they spend per year for vacations?

3) The marked price of shirts in a store is $30. For one week, the store sells $1,740 worth of shirts. How many shirts did the store sell?

4) Joan and her 6 colleagues working in a restaurant earned $832 in tips for the day. How much will each person be paid in tips if it is split equally?

5) A bag of table tennis balls costs $12. There are 15 balls in the bag. How much does each ball cost?

6) The Children's Playschool took a school field trip. For the safety of the kids, each teacher was responsible for 24 kids. If 360 kids participated, how many teachers participated

# Shapes

**Vocabulary**

**Quadrilateral**: Quad means four; therefore, a quadrilateral is any four-sided shape.

**Polygon:** Poly means many, so many sides. Any shape with three or more sides.

**Rectangle:** is a quadrilateral and polygon. It has four sides, both parallel sides are the same length.

The two marks, || and ⎯ say that the two sides || are the same 10 cm. and the two sides with the ⎯ are 5 cm

**10 cm**

**5 cm**
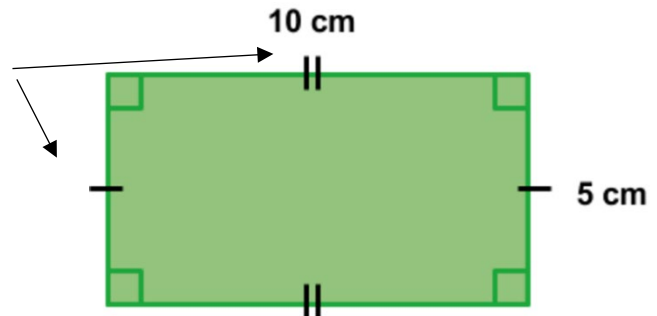
**Square:** As most people realize, all four sides are exactly the same length as shown in the illustration below.

Note: Only on side shows a measurement of 6 cm. Also note the marks on all four sides are the same.

**6 cm**
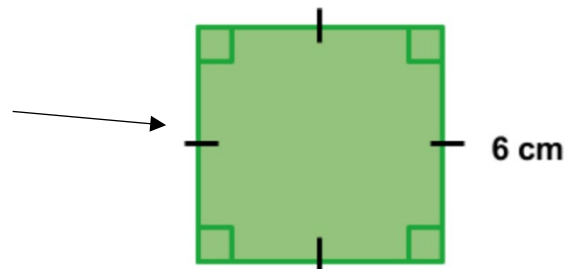
**Triangle:** there are four types.

## Types of Triangles

**Equilateral triangle**

All sides the same length

All internal angles the same

**Isosceles triangle**

2 sides the same length

2 internal angles the same

**Right-Angled triangle**

1 internal angles that is 90°

Can be either scalene or isosceles as well

**Scalene triangle**

All the different length

All internal angles different

www.links2learn.co.uk
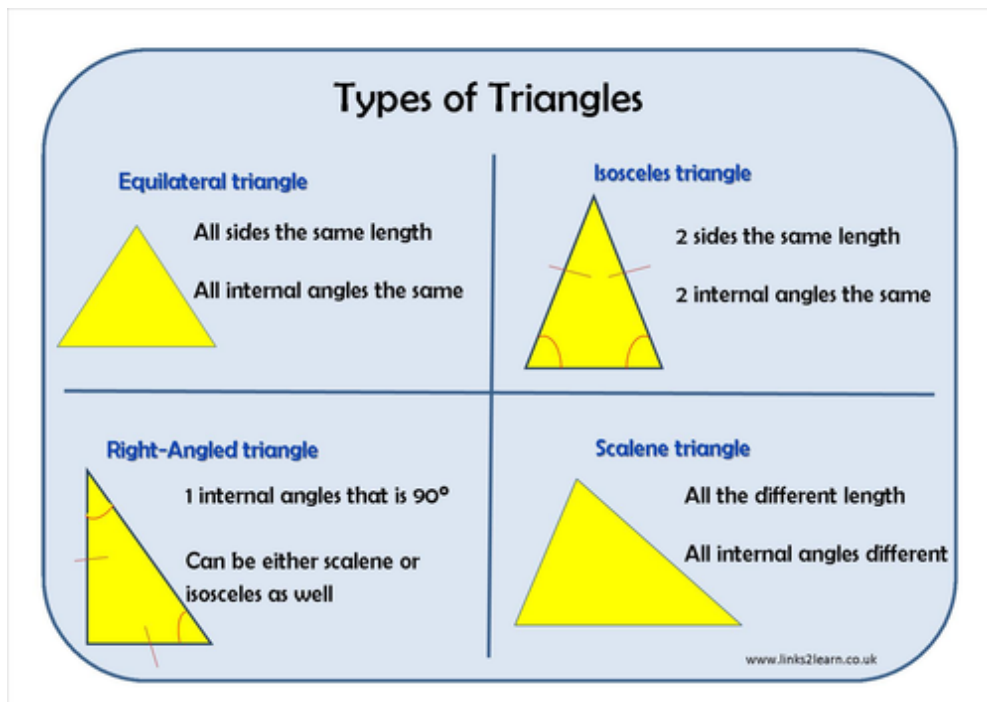
**Vocabulary**

**Perimeter:** The Perimeter is the measurement around the shape, Let's look at a rectangle, square and triangle.
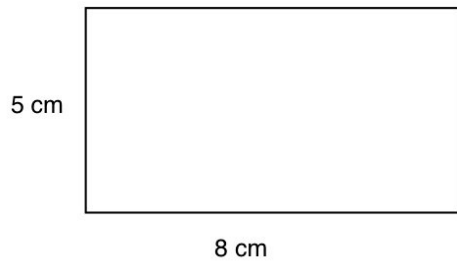
The first thing we notice is there are only two numbers, 5 cm and 8 cm.

How many sides are there?   4!

There are two sides that measure 5 cm's and two sides that measure 8 cm's.

Solution, 5 + 5 + 8 + 8 = 26

5 cm

8 cm

Our first **formula**: a simple formula to remember is **2L + 2W = P**.

You may also see it as **p = 2L + 2W**.

**P = perimeter**

**L = Length**

**W = Width**.

When a number is placed together with a letter such as 2L or 2W, this indicates multiplication. It means 2 × L and 2 × W.

In our example above, our length is 8cm. and our width is 5cm. Let's put these numbers into the equation.

P = 2L + 2W, substitute 8 for the L, and 5 for the W.

p = 2 × 8 + 2 × 5. Now do the math.

2 × 8 = 16, and 2 × 5 = 10.

The formula tells us to add these to answers together, 16 + 10 = 26. Expressed as 26cm.

**Squares**

It's no different. There are four sides, just add all the sides together.

Again, notice there is only one 6 because all sides are 6cm long.

6 + 6 + 6 + 6 = p.

Another way is using a formula, p = 4s, s = side or 6

That is p = 4 × 6.

6 cm

Either way, our solution is p =24cm.
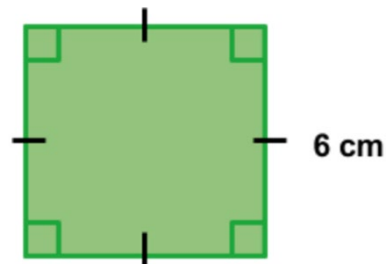
Tringles

The only different for finding the perimeter of a triangle, there is only three sides. The sides can be all the same in measurement, or completely different.
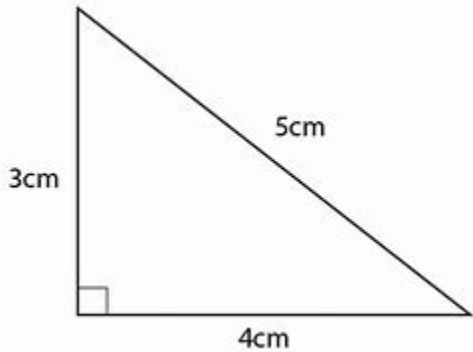


Add all the side measurements together.

P = 3 + 5 + 4          P = 12cm.
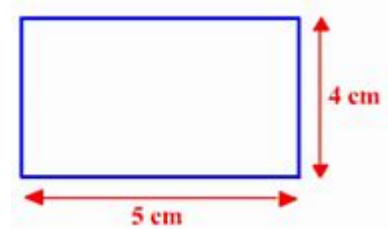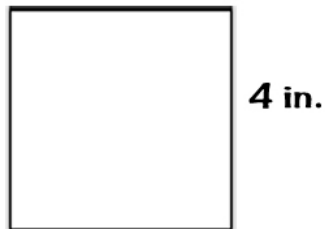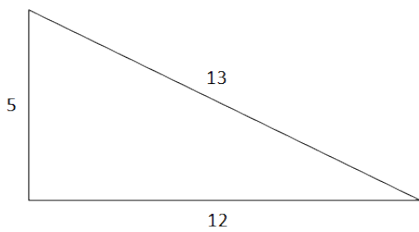
The formula is p = a + b + c.

Letters only represent unknown numbers.

Let us try one on our own.
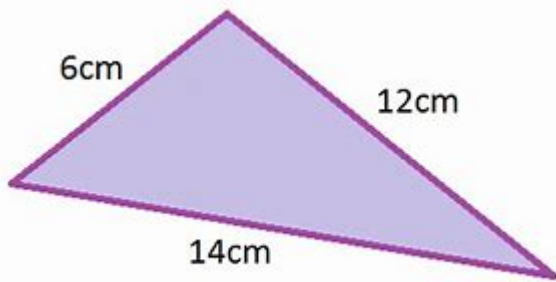


What is the perimeter of this triangle?

Let's work a few problems. What's the perimeters of the following shapes?

## Area of a polygon/quadrilateral

We've learned that to measure around the outside of a polygon/quadrilateral is called perimeter. Suppose you need to resurface a table. The top of the table is considered two dimensional. That is, it has a length and a width only. Like a piece of paper really doesn't have and depth to it. To resurface, that is, to redo the top of a table we need to know what is called, Surface area.

**Vocabulary**

**Area**: Is the total amount of area of a flat surface.

**Surface area** can be measured in inches, feet, yards, miles, centimeters, meters, kilometers. Let us have a look.

**Example**:

5 Feet

3 Feet
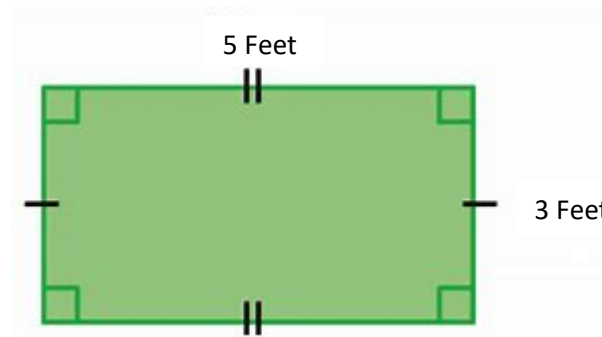
Let us say this rectangle is the top of a table. You need to buy material to recover the top. The clerk at the store asks you, "how many square feet do you need?

What area means, in this case, how many "Square" feet can fit on the tabletop? If we drew lines on the table to, cutting it into squares it would look like this.
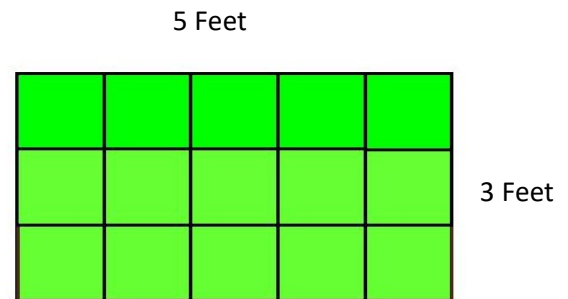
5 Feet

3 Feet

Can you count the number of squares in the second illustration, how many are there?

Formula time!   There is a simple formula you need to use, **Area = Length × Width**.

What's the length? 5 feet. What's the width? 3 feet. Let's put the numbers into the formula.
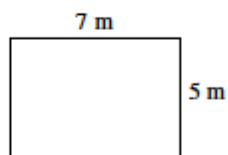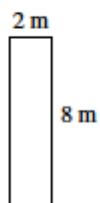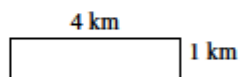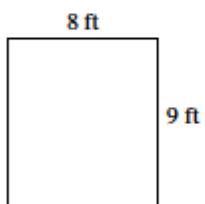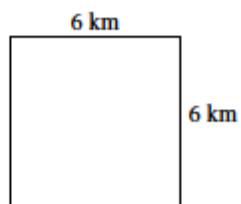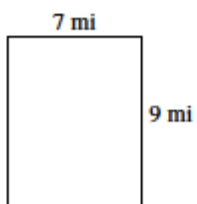
$$A = L \times W$$

$$A = 5 \times 3 = 15$$

**Note: Because we are talking square, our answer is written $15ft^2$**

# Area and Perimeter of Rectangles (A)

Find the area and perimeter of each rectangle.

7 mi
9 mi

6 km
6 km

8 ft
9 ft

4 km
1 km

2 m
8 m

7 m
5 m

**Area and Perimeter Word Problems.**

1) Toby has a suitcase. The suitcase's length is 22 inches and the width is 18 inches. Find the area of a suitcase.

2) Herbert is decorating the bulletin board in the school's lobby. The bulletin board is a 7 ft by 11 ft rectangle. He decides to add a black border around the entire bulletin board. What is the length of border that he needs?

3) Before soccer practice, Laura warms up by jogging around the soccer field that is 80 yards by 120 yards. How many yards does she jog if she goes around the field two times?

4) Andy brought a computer. The length of the computer is 32 inches and the width is 14 inches. Find the area of the computer.

**Let's try similar problems but with a twist. You still must find the area but now calculate the cost per square.**

**Example:** Betty wants to install new carpet in her living room. The room length is 15 ft and the width is 12 ft. If the cost of the carpet is $8 per square foot, what will be the total cost to carpet Betty's living room? What do we have to do?

A = L × W, or A = $15 \times 12 = 180 ft^2$

But what is the question? **What is the total cost if it costs 8 per square foot?**

That's simple, how many square feet do we have? 180, multiply it by $8 our answer is $1,440.

5) Jane wants to install new carpet in her living room. The length is 20ft and the width is 15ft. If the cost of the carpet is $12 per square foot, what will the total cost be?

6) Skip owns a shop. He wants to install new flooring. The shop measures 40ft by 30ft. If the new flooring costs $5 per square foot, how much will it cost skip for the new floor?

Triangles are a different animal than rectangles. When you have a question asking you to find the area of a triangle, the formula is different. A simple way is to remember the following

Base times the height divided by two. In a formula it will look like this. $\frac{bh}{2}$ This says the same thing, base times the height divided by 2. Let's have a look.

This measurement is always the height.

14mm

7mm
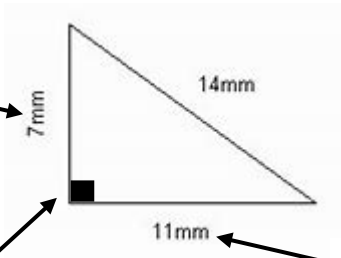
This is a right Triangle. Indicated by this

11mm

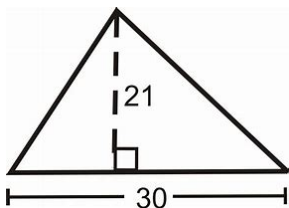This measurement is always the base, the bottom of the triangle.

What is the base? __**11**__     What is the height ? __**7**__

Put this into order   $11 \times 7 = 77$.    $77 \div 2 = 38.5mm^2$

Or we can use formulas

| 1 | $\frac{bh}{2}$ recall, anytime letters are next to each other, that is multiplication. $\frac{11 \times 7}{2}$ |

| 2 | $\frac{1}{2}bh$ What this says is one half times base times height. In a calculator you enter |

    $.5 \times 11 \times 7 = 38.5$ Same results.

21

30

This triangle looks different but notice the dashed line. This is the height.

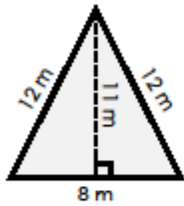The base stays the same. Put it in our formulas 30 × 21 ÷ 2 our answer is _____.

Name: _____

# Area and Perimeter of a Triangle

Find the area and perimeter of each triangle.

**a.**

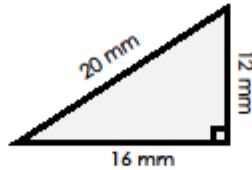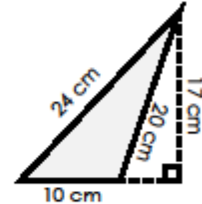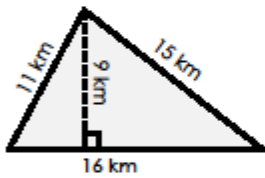12 m    11 m    12 m

8 m

area = _____

perimeter = _____

**b.**

20 mm    12 mm

16 mm

area = _____

perimeter = _____

**c.**

24 cm    20 cm    17 cm

10 cm

area = _____

perimeter = _____

**d.**

11 km    9 km    15 km

16 km

area = _____

perimeter = _____

**e.**

26 m    20 m    22 m

13 m

area = _____

perimeter = _____

**f.**

20 cm

28 cm    20 cm

area = _____

perimeter = _____

**g.**

23 mm    27 m    36 mm

30 mm

area = _____

perimeter = _____

**h.**

26 cm    51 cm

44 cm

area = _____

perimeter = _____

**i.**

50 km

38 km    30 km    48 km
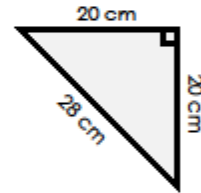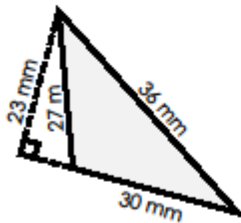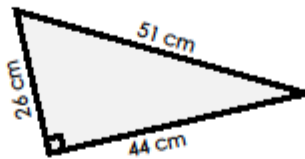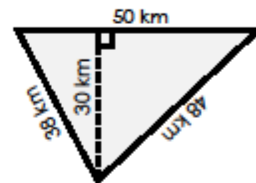
area = _____

perimeter = _____

## Measure of Central Tendency

**Vocabulary**:

**Mean:** the word simply means, average, adding up all the numbers in a data set, then dividing by the total of numbers in the set.

Example { 2, 3, 8, 7, 3, 9 } = 2 + 3 + 8 + 7 +3 + 9 = 32.
How many numbers in set? 6.
 Divide 32 by 6, average/mean = 5.33

**Mode**: the mode is the number or numbers that repeat the most often.

Example: { 2, 2, 4, 6, 6, 8, 8, 8, 9 } We see 2, 6 and 8 repeat but, there are three 8s so 8 is the mode.

There can be two or even three modes, if there had been 222, and 888 then 2 and 8 would be the mode.

If there are no repeating numbers, then no mode.

**Median**: the median is the exact center of the data set.

**Range**: the range is the difference between the smallest and the largest number in the data set.

Example: { 2, 3, 8, 7, 3, 9 } the range is 9 – 2 = 7.

The range is 7

**Data Set**: the data set is a set of numbers and is usually enclosed with brackets like these { }.

Example: { 2, 2, 4, 6, 6, 8, 8, 8, 9 } is a data set.

**Elements:** elements are the numbers within the data set. { 2, 2, 4, 6, 6, 8, 8, 8, 9 }

2, 4, 6 are all elements.

---

Mean: Find the mean of the following data set. { 2, 5, 9. 7, 5, 4, 3 }

**Step one**: Add all the numbers up.

**Step two**, count the numbers in the data set. How many are there?

_____

_____

**Step Three**:
 divide the answer in step one by the answer in step two. _____

$$\overline{)\phantom{xxxxxxxx}}$$

What's the mean? _____

**Mode**

What is the mode of the following data set? { 2, 5, 9, 3, 5, 4, 7 }

This is a small set; it is easy to see if there are any repeating numbers.

Which number repeats? _____


Let's try another data set { 2, 5, 9, 3, 5, 4, 2 }

Again, small set, which number or numbers repeats? _____ & _____ Did you find two numbers? Two numbers repeating is called bimodal.


Lets do another { 2, 5, 9, 3, 5, 4, 2, 4, 1, 8, 7, 23, 10 }


How many numbers repeat equally? _____ & _____ & _____

Did you find three numbers? This is called trimodal.


Okay, one more: { 2, 5, 9, 3, 6, 4, 7 }


How many numbers repeat? _____

Didn't find any did you? This set does not have a mode, "no mode."


**Median**

The median is the exact center of a data set. To find that we must follow certain steps. How we find the center depends on if there is an even or odd amount of numbers in the data set.

   **Example** 1: Data set { 2, 5, 9, 3, 5, 4, }

   **Step one**: Place data set into numerical order { 2, 3, 4, 5, 5, 7, 9, }

   **Step two**: how many numbers in the set? Is it odd or even? "Its odd, 7 numbers.

   **Step three**, find the number directly in the center, { 2, 3, 4, 5, 5, 7, 9, }


   *What we see is that 5, is directly in the center of the set, 5 is the median!*

However, what if the set is even?

Let's see, try this set { 2, 5, 9, 3, 5, 4, }

**Step one**: Put into numerical order, { 2, 3, 4, 5, 5, 9, }.

**Step two**: Does the set have an odd or even number? There are six numbers in the set, so it is even!

**Step three**: Note the exact center is in between the four and the five. { 2, 3, 4, 5, 5, 9, }

**Step four**: because the center is in between to numbers we must

Add those two numbers together. $4 + 5 = 9$.

**Step five**: Divide the answer, 9 by 2. By 2 always by two because you are adding two numbers together.

What's the median?   **4.5**   .

**Range:**

Recall, range is the difference between the smallest and largest number. Let's use the same data set.

**Example**: { 2, 3, 4, 5, 5, 9, }

$$9 - 2 = 7$$

The range is 7

Try it out on the next page!

Name : _____     Score : _____

Teacher : _____     Date : _____

## Mean, Mode, Median, and Range

1) 5, 3, 5, 4, 4, 2, 9, 3, 9, 6, 5

Mean _____ Median _____ Mode _____ Range _____

2) 8, 8, 9, 2, 7, 7, 6, 7, 9

Mean _____ Median _____ Mode _____ Range _____

3) 5, 6, 8, 6, 7, 8, 2, 6, 7, 4, 7

Mean _____ Median _____ Mode _____ Range _____

4) 2, 8, 2, 2, 2, 5, 2, 2, 6, 9

Mean _____ Median _____ Mode _____ Range _____

5) 6, 5, 6, 6, 6, 5, 7, 6, 7

Mean _____ Median _____ Mode _____ Range _____

6) 4, 2, 6, 3, 2, 7, 4, 3, 5, 3, 2, 7

Mean _____ Median _____ Mode _____ Range _____

7) 3, 3, 7, 5, 9, 7, 7, 7

Mean _____ Median _____ Mode _____ Range _____

8) 5, 6, 7, 9, 9, 4, 9, 6, 8, 7

Mean _____ Median _____ Mode _____ Range _____

9) 4, 3, 4, 3, 3, 4, 5, 6

Mean _____ Median _____ Mode _____ Range _____

10) 2, 3, 2, 4, 10, 5, 9

Mean _____ Median _____ Mode _____ Range _____

## Prime and composite numbers

**Vocabulary**

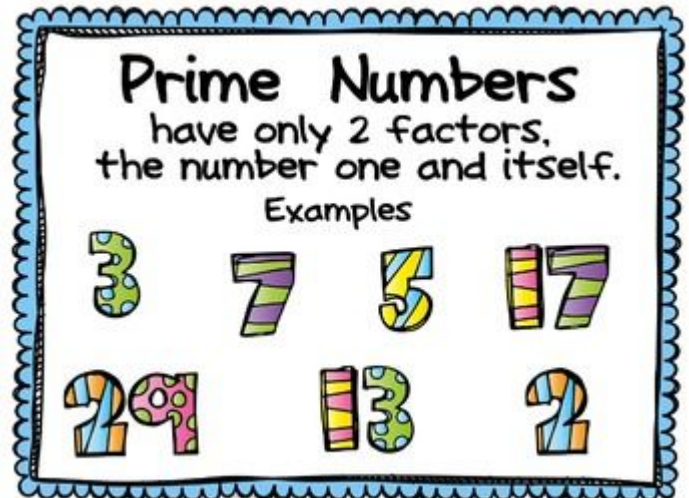**Factors.** Factor is a word used in multiplication. $2 \times 3 = 6$.

    2 & 3 are factors of six.

1 can be a factor of 6 as well because

    $1 \times 6 = 6$

**Primes or Prime numbers:**

These are numbers that have only two factors!

That means, there are only two numbers when multiplied together equals that number.

**Example**, 3 is a prime number because the only numbers when multiplied together that equals 3 is, 1 and 3.

$1 \times 3 = 3$

No other numbers will make a 3.

**Composite:**

Composite numbers are all other numbers. They have more than two factors.

Let's look at 16. It is a composite number. What numbers when multiplied together will eqaul 16?
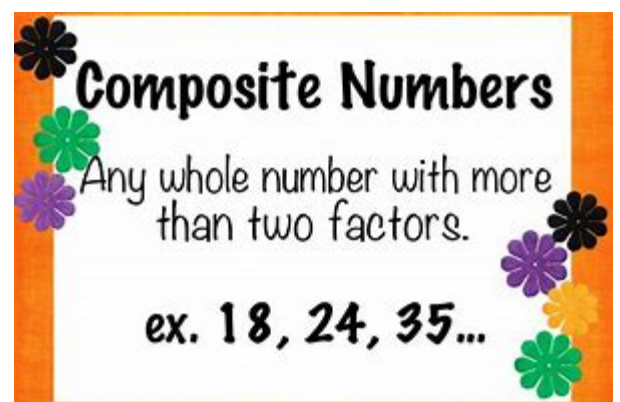
$1 \times 16$

$2 \times 8$

$4 \times 4$

*So 1, 2, 4, 8, and 16 are all factors of 16*

When asked if a number is prime or composite, ask yourself, what are the numbers/factors that can be multipled together to create that number?

You try, is 53 a prime or composite? _____.

**Task 1**: What are the prime numbers in this list

2, 8, 3, 12, 14, 21, 23, 18, 33, 25, 35.

**Task 2**: What are the composite numbers in this list.

2, 8, 3, 12, 2, 14, 21, 23, 17, 30, 25, 35.

**Task 3**: can you list out the factors of these numbers?

**Example**: what are the factors of 18?

$1 \times 18$

$2 \times 9$

Factors: 1, 2, 3, 6, 9, 18

$3 \times 6$

Your turn: What are the factors of

1)  8                                        2)  12

3)  16                                        4)  28

# Answer sheets.

*The follow are answers based upon page numbers.*

*The second part are answer sheets to the work sheets after explanations of how to do the work.*

**Page 12**

Practice

$5 \times 0 = 0$ $\qquad$ $8 \times 1 = 8$ $\qquad$ $1120 \times 0 = 0$

$25687 \times 1 = 25687$ $\qquad$ $328740 \times 0 = 0$ $\qquad$ $0 \times 1 =$

$1 \times 15 = 15$ $\qquad$ $1 \times 325 = 325$

**Page 19**

Multiplication word problems

1) $189 $\qquad$ 2) 70 inches $\qquad$ 3) 455 $\qquad$ 4) $14280

**Page 24**

6.2, $\qquad$ 4, $\qquad$ 9.5 $\qquad$ 8.8

**Page 29**

Division word problems.

1) 2009, $\qquad$ 2) $4,200 $\qquad$ 3) 58 $\qquad$ 4) $118.86

5) 0.80 cents $\qquad$ 6) 15

**Page 34**

Area and Perimeter word problems

1) 396 inches square $\qquad$ 2) 36 ft $\qquad$ 3) 800 yards $\qquad$ 4) 448 inches squared

5) $3,600 $\qquad$ 6) $6,000

**Page 37**

Area and perimeter of triangles.

a.   A = 48   P = 32          b. A = 96  P = 48          c. A -85    P = 51

d.   A = 120   P = 42          e. A = 143   P =61          f. A = 200   P = 68

g.   A = 345   P = 89          h. A = 572 P = 121          i. A =  750   P = 136


**Page 43**

Mean, mode, media and range

Task one: 2,3, 23, 33

Task two

8, 12, 14, 21, 30, 25, 35


What are the factors?

1)   1, 2, 4, 8          2) 1, 2, 3, 4, 6, 12          3) 1, 2, 4, 8, 16          4) 1, 2,4, 7, 14, 28

## Write the Numbers in Expanded Form.

1 )  5,535     5,000 + 500 + 30 + 5

2 )  4,946     4,000 + 900 + 40 + 6

3 )  8,533     8,000 + 500 + 30 + 3

4 )  3,151     3,000 + 100 + 50 + 1

5 )  6,436     6,000 + 400 + 30 + 6

6 )  8,335     8,000 + 300 + 30 + 5

7 )  4,654     4,000 + 600 + 50 + 4

8 )  4,824     4,000 + 800 + 20 + 4

9 )  3,326     3,000 + 300 + 20 + 6

10 )  7,716     7,000 + 700 + 10 + 6

11 )  1,560     1,000 + 500 + 60 + 0

12 )  3,940     3,000 + 900 + 40 + 0

13 )  6,729     6,000 + 700 + 20 + 9

14 )  1,978     1,000 + 900 + 70 + 8

15 )  6,823     6,000 + 800 + 20 + 3

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## Expanded Notation

**Write each number in expanded notation.**

1)   933  = $(9 \times 100) + (3 \times 10) + (3 \times 1)$

2)   192  = $(1 \times 100) + (9 \times 10) + (2 \times 1)$

3)   299  = $(2 \times 100) + (9 \times 10) + (9 \times 1)$

4)   507  = $(5 \times 100) + (0 \times 10) + (7 \times 1)$

5)   542  = $(5 \times 100) + (4 \times 10) + (2 \times 1)$

6)   156  = $(1 \times 100) + (5 \times 10) + (6 \times 1)$

7)   819  = $(8 \times 100) + (1 \times 10) + (9 \times 1)$

8)   607  = $(6 \times 100) + (0 \times 10) + (7 \times 1)$

9)   145  = $(1 \times 100) + (4 \times 10) + (5 \times 1)$

10)  110  = $(1 \times 100) + (1 \times 10) + (0 \times 1)$

**Write Each Number in Standard Form.**

11)  873  = $(8 \times 100) + (7 \times 10) + (3 \times 1)$

12)  315  = $(3 \times 100) + (1 \times 10) + (5 \times 1)$

13)  331  = $(3 \times 100) + (3 \times 10) + (1 \times 1)$

14)  285  = $(2 \times 100) + (8 \times 10) + (5 \times 1)$

15)  438  = $(4 \times 100) + (3 \times 10) + (8 \times 1)$

16)  698  = $(6 \times 100) + (9 \times 10) + (8 \times 1)$

17)  705  = $(7 \times 100) + (0 \times 10) + (5 \times 1)$

18)  916  = $(9 \times 100) + (1 \times 10) + (6 \times 1)$

19)  828  = $(8 \times 100) + (2 \times 10) + (8 \times 1)$

20)  307  = $(3 \times 100) + (0 \times 10) + (7 \times 1)$

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## Match the Number with the Correct Name.

1 )  __H__  9,318,624          **A**  Eight Hundred Twenty - Nine

2 )  __I__    1,983            **B**  One Hundred Thirty - Eight Thousand, Nine Hundred Eighty - Five

3 )  __B__  138,985            **C**  Six Hundred Seventy - Seven

4 )  __D__  429,148            **D**  Four Hundred Twenty - Nine Thousand, One Hundred Forty - Eight

5 )  __A__    829              **E**  Six Thousand, One Hundred Seventy - Two

6 )  __C__    677              **F**  Eighty - Seven Thousand, Four Hundred Seventy - Five

7 )  __F__   87,475            **G**  Seven Million, Four Hundred Eighty - Six Thousand, Nine Hundred Seventy - Four

8 )  __E__    6,172            **H**  Nine Million, Three Hundred Eighteen Thousand, Six Hundred Twenty - Four

9 )  __G__  7,486,974          **I**  One Thousand, Nine Hundred Eighty - Three

10 )  __J__   18,915           **J**  Eighteen Thousand, Nine Hundred Fifteen

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# Multiplication Facts to 144 (A) Answers

**Find each product.**

| | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| 5 | 12 | 12 | 1 | 7 | 7 | 5 | 11 | 0 | 0 |
| × 8 | × 11 | × 4 | × 6 | × 5 | × 7 | × 11 | × 0 | × 7 | × 8 |
| 40 | 132 | 48 | 6 | 35 | 49 | 55 | 0 | 0 | 0 |
| 11 | 4 | 11 | 2 | 11 | 10 | 7 | 0 | 6 | 9 |
| × 8 | × 9 | × 1 | × 1 | × 12 | × 12 | × 8 | × 3 | × 11 | × 3 |
| 88 | 36 | 11 | 2 | 132 | 120 | 56 | 0 | 66 | 27 |
| 5 | 12 | 6 | 9 | 4 | 10 | 12 | 0 | 12 | 6 |
| × 6 | × 3 | × 12 | × 3 | × 8 | × 7 | × 1 | × 5 | × 12 | × 5 |
| 30 | 36 | 72 | 27 | 32 | 70 | 12 | 0 | 144 | 30 |
| 5 | 4 | 9 | 6 | 8 | 1 | 4 | 4 | 5 | 1 |
| × 4 | × 7 | × 6 | × 2 | × 9 | × 4 | × 11 | × 0 | × 9 | × 9 |
| 20 | 28 | 54 | 12 | 72 | 4 | 44 | 0 | 45 | 9 |
| 7 | 6 | 1 | 0 | 10 | 1 | 2 | 1 | 2 | 2 |
| × 11 | × 8 | × 7 | × 6 | × 10 | × 1 | × 8 | × 0 | × 10 | × 4 |
| 77 | 48 | 7 | 0 | 100 | 1 | 16 | 0 | 20 | 8 |
| 4 | 4 | 12 | 11 | 2 | 3 | 1 | 0 | 7 | 2 |
| × 12 | × 4 | × 5 | × 11 | × 9 | × 10 | × 3 | × 2 | × 12 | × 11 |
| 48 | 16 | 60 | 121 | 18 | 30 | 3 | 0 | 84 | 22 |
| 0 | 3 | 10 | 2 | 1 | 7 | 4 | 3 | 3 | 8 |
| × 12 | × 4 | × 1 | × 7 | × 5 | × 3 | × 6 | × 11 | × 5 | × 10 |
| 0 | 12 | 10 | 14 | 5 | 21 | 24 | 33 | 15 | 80 |
| 7 | 11 | 8 | 9 | 3 | 10 | 6 | 9 | 7 | 0 |
| × 5 | × 9 | × 8 | × 10 | × 6 | × 6 | × 5 | × 9 | × 9 | × 10 |
| 35 | 99 | 64 | 90 | 18 | 60 | 30 | 81 | 63 | 0 |
| 2 | 5 | 6 | 4 | 11 | 10 | 6 | 8 | 10 | 9 |
| × 3 | × 10 | × 7 | × 5 | × 10 | × 4 | × 6 | × 1 | × 2 | × 12 |
| 6 | 50 | 42 | 20 | 110 | 40 | 36 | 8 | 20 | 108 |
| 8 | 3 | 3 | 10 | 5 | 2 | 2 | 0 | 2 | 2 |
| × 12 | × 3 | × 8 | × 6 | × 5 | × 5 | × 12 | × 9 | × 10 | × 2 |
| 96 | 9 | 24 | 60 | 25 | 10 | 24 | 0 | 20 | 4 |

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# 2-Digit by 2-Digit Multiplication (A) Answers

Name: _____

Date: _____

### Calculate each product.

|  |  |  |  |  |
|---|---|---|---|---|
| 44 | 72 | 48 | 13 | 46 |
| × 46 | × 19 | × 49 | × 90 | × 16 |
| 264 | 648 | 432 | **1170** | 276 |
| 1760 | 720 | 1920 |  | 460 |
| **2024** | **1368** | **2352** |  | **736** |

|  |  |  |  |  |
|---|---|---|---|---|
| 61 | 25 | 45 | 97 | 36 |
| × 10 | × 55 | × 63 | × 41 | × 56 |
| **610** | 125 | 135 | 97 | 216 |
|  | 1250 | 2700 | 3880 | 1800 |
|  | **1375** | **2835** | **3977** | **2016** |

|  |  |  |  |  |
|---|---|---|---|---|
| 48 | 77 | 84 | 59 | 28 |
| × 15 | × 88 | × 84 | × 18 | × 25 |
| 240 | 616 | 336 | 472 | 140 |
| 480 | 6160 | 6720 | 590 | 560 |
| **720** | **6776** | **7056** | **1062** | **700** |

|  |  |  |  |  |
|---|---|---|---|---|
| 81 | 14 | 57 | 34 | 99 |
| × 30 | × 57 | × 51 | × 45 | × 92 |
| **2430** | 98 | 57 | 170 | 198 |
|  | 700 | 2850 | 1360 | 8910 |
|  | **798** | **2907** | **1530** | **9108** |

Score: ___/20

# 3-Digit by 3-Digit Multiplication (A) Answers

Name: _____

Date: _____

Calculate each product.

| 505 | 651 | 529 | 208 | 948 |
|---|---|---|---|---|
| × 117 | × 954 | × 784 | × 724 | × 184 |
| 3535 | 2604 | 2116 | 832 | 3792 |
| 5050 | 32550 | 42320 | 4160 | 75840 |
| 50500 | 585900 | 370300 | 145600 | 94800 |
| **59085** | **621054** | **414736** | **150592** | **174432** |

| 615 | 881 | 420 | 430 | 634 |
|---|---|---|---|---|
| × 351 | × 599 | × 702 | × 931 | × 462 |
| 615 | 7929 | 840 | 430 | 1268 |
| 30750 | 79290 | 294000 | 12900 | 38040 |
| 184500 | 440500 | **294840** | 387000 | 253600 |
| **215865** | **527719** | | **400330** | **292908** |

| 686 | 983 | 979 | 263 | 137 |
|---|---|---|---|---|
| × 946 | × 747 | × 209 | × 772 | × 615 |
| 4116 | 6881 | 8811 | 526 | 685 |
| 27440 | 39320 | 195800 | 18410 | 1370 |
| 617400 | 688100 | **204611** | 184100 | 82200 |
| **648956** | **734301** | | **203036** | **84255** |

| 797 | 619 | 299 | 577 | 445 |
|---|---|---|---|---|
| × 528 | × 223 | × 135 | × 667 | × 702 |
| 6376 | 1857 | 1495 | 4039 | 890 |
| 15940 | 12380 | 8970 | 34620 | 311500 |
| 398500 | 123800 | 29900 | 346200 | **312390** |
| **420816** | **138037** | **40365** | **384859** | |

Score: ___ /20

# Division (A) Answers

**Find each quotient.**

| | | | | |
|---|---|---|---|---|
| $\dfrac{59}{4)\overline{236}}$ | $\dfrac{33}{5)\overline{165}}$ | $\dfrac{74}{7)\overline{518}}$ | $\dfrac{86}{6)\overline{516}}$ | $\dfrac{56}{8)\overline{448}}$ |
| $\dfrac{90}{8)\overline{720}}$ | $\dfrac{38}{8)\overline{304}}$ | $\dfrac{86}{9)\overline{774}}$ | $\dfrac{54}{3)\overline{162}}$ | $\dfrac{57}{5)\overline{285}}$ |
| $\dfrac{61}{4)\overline{244}}$ | $\dfrac{85}{9)\overline{765}}$ | $\dfrac{60}{8)\overline{480}}$ | $\dfrac{24}{8)\overline{192}}$ | $\dfrac{38}{2)\overline{76}}$ |
| $\dfrac{52}{6)\overline{312}}$ | $\dfrac{68}{8)\overline{544}}$ | $\dfrac{10}{5)\overline{50}}$ | $\dfrac{61}{7)\overline{427}}$ | $\dfrac{27}{4)\overline{108}}$ |

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# Division (A) Answers

### Find each quotient.

$$\begin{array}{r} 527 \\ 2\overline{)1054} \end{array} \qquad \begin{array}{r} 907 \\ 5\overline{)4535} \end{array} \qquad \begin{array}{r} 675 \\ 7\overline{)4725} \end{array} \qquad \begin{array}{r} 410 \\ 5\overline{)2050} \end{array} \qquad \begin{array}{r} 486 \\ 5\overline{)2430} \end{array}$$

$$\begin{array}{r} 375 \\ 9\overline{)3375} \end{array} \qquad \begin{array}{r} 926 \\ 2\overline{)1852} \end{array} \qquad \begin{array}{r} 874 \\ 3\overline{)2622} \end{array} \qquad \begin{array}{r} 354 \\ 4\overline{)1416} \end{array} \qquad \begin{array}{r} 788 \\ 9\overline{)7092} \end{array}$$

$$\begin{array}{r} 744 \\ 7\overline{)5208} \end{array} \qquad \begin{array}{r} 468 \\ 4\overline{)1872} \end{array} \qquad \begin{array}{r} 317 \\ 9\overline{)2853} \end{array} \qquad \begin{array}{r} 900 \\ 7\overline{)6300} \end{array} \qquad \begin{array}{r} 644 \\ 2\overline{)1288} \end{array}$$

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