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### WORKSHEET 3-1

Solve for x.

1.  $4 + x = 24$

2.  $x + 14 = 21$

3.  $2 + x = 12$

4.  $x + 72 = 172$

5.  $x - 33 = 54$

6.  $9 + x = 62$

7.  $4 - x = 0$

8.  $x + 25 = 100$

9.  $x - 8 = 176$

10.  $10 + x = 310$

11.  $x + 38 = 44$

12.  $x - 8 = 34$

13.  $x - 8 = 5$

14.  $x - 14 = -2$

15.  $9 + x = -1$

16.  $11 + x = -7$

17.  $4 + x = 2$

18.  $x - 3 = 27$

19.  $x + 36 = 36$

20.  $4 + x = -26$

21.  $-33 = 7 + x$

22. Eric had 57 baseball cards. He gave his brother a small handful of them. Now he only has 43 cards left. How many cards did Eric give to his brother?

$$43 + x = 57$$

23. Mike has 9 gallons of paint. He needs a total of 17 gallons to paint the house. How many more gallons does he need?

$$9 + x = 17$$

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### WORKSHEET 3-1a

Solve for x.

1.  $-3 + x = -12$

2.  $x - 14 = -28$

3.  $12 + x = 4$

4.  $10 + x = 5$

5.  $x + 8 = -48$

6.  $62 = x + 9$

7.  $-44 = x - 18$

8.  $x + 25 = -100$

9.  $x - 10 = -17$

10.  $x + 5 = -55$

11.  $x + 7 = -12$

12.  $8 + x = -20$

13.  $x - 27 = -15$

14.  $-\frac{1}{2} + x = -.5$

15.  $-.75 + x = .25$

16.  $x + .3 = -5.3$

17.  $\frac{1}{2} + x = 5$

18.  $x - \frac{1}{4} = -6\frac{3}{4}$

22. Sarah is trying to break the record for doing the most one-handed cart wheels on a balance beam without falling. Right now the record is 71, so she needs to get to 72 to break the record. She has done 15 cartwheels, so far. How many more does she need to do to break the record? Use algebra to solve for x in the equation below.

$$15 + x = 72$$

23. Robin needs to keep track of the water level at Lake Welch. At the end of the summer, the water level was low. It measured 30 inches below the desired level. After a week of rain, the water level rose and is now only 16 inches below the desired level. How many inches did it rain? Use algebra to solve for x.

$$-30 + x = -16$$

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### WORKSHEET 3-2

Solve for x.

1.  $4x = 16$       2.  $5x = 15$       3.  $3x = 21$       4.  $9x = 54$

5.  $8x = 56$       6.  $2x = 12$       7.  $8x = 72$       8.  $3x = 12$

9.  $9x = 63$       10.  $4x = 28$       11.  $5x = 105$       12.  $11x = 176$

13.  $10x = 210$       14.  $12x = 144$       15.  $8x = 24$       16.  $6x = 24$

17.  $1/2x = 4$       18.  $3x = 42$       19.  $9x = 81$       20.  $11x = 154$

21.  $4x = 32$       22.  $7x = 42$       23.  $6x = 48$       24.  $6x = 36$

25.  $2x = 100$       26.  $4x = 36$       27.  $9x = 18$       28.  $49 = 7x$

29.  $9 = 3x$       30.  $27 = 3x$       31.  $30 = 6x$       32.  $48 = 12x$

33.  $11x = 33$       34.  $12x = 60$       35.  $14x = 56$       36.  $100x = -500$

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### WORKSHEET 3-2a

Solve for x.

1.  $6x = 3$

2.  $\frac{1}{2}x = 8$

3.  $5x = 3.75$

4.  $-5x = 25$

5.  $-\frac{1}{8}x = 1$

6.  $-2x = -34$

7.  $-5 + x = 2\frac{1}{2}$

8.  $10x = -6\frac{1}{4}$

9.  $8x = 64$

10.  $-7x = -49$

11.  $16x = -4$

12.  $72 = -9x$

13.  $-3\frac{1}{8} + x = 2$

14.  $8\frac{3}{8}x = -8\frac{3}{8}$

15.  $12 + x = 4$

16.  $x - \frac{5}{6} = \frac{2}{12}$

Try to solve these ones in your mind. (This is a tough one.)

17.  $\frac{1}{2}x = -10$

18.  $8 = \frac{1}{2}x$

19.  $14x = 7$

20.  $-2x = 4$

21. A 5 inch hamburger patty shrinks down to  $\frac{3}{4}$  that size when cooked. Here is the math,  $\frac{3}{4} \cdot 5 = x$   $\frac{15}{4} = x$ . But Collin wants the cooked burgers to be exactly 3". What size hamburger patties should he make?

$$\frac{3}{4}x = 3 \text{ inches}$$

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### WORKSHEET 3-3a

1.  $\frac{x}{5} = 8$

2.  $\frac{x}{9} = 7$

3.  $\frac{x}{10} = \frac{1}{2}$

4.  $\frac{x}{8} = 2\frac{3}{4}$

5.  $\frac{x}{-8} = \frac{5}{8}$

6.  $\frac{7}{16} = \frac{x}{24}$

7.  $-9 = \frac{x}{3}$

8.  $\frac{x}{4} = -3\frac{1}{2}$

9.  $18 = \frac{x}{\frac{1}{2}}$

10.  $\frac{x}{3} = -4\frac{7}{8}$

11. Connor is playing in a championship football game. His team has a score of 56 points. Each touchdown was worth 7 points, so how many touchdowns did they make? Use the algebraic equation below to solve the problem.

$$7 = \frac{56}{x}$$

12. Keith is writing an essay for a contest. Each mistake is worth  $-\frac{1}{2}$  points. If his total is  $-5\frac{1}{2}$  points or more, he will win. How many mistakes can he make and still win? Use the algebraic equation below to solve the problem.

$$-\frac{1}{2} = \frac{-5\frac{1}{2}}{x}$$

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### WORKSHEET 3-4

Solve the following.

1.  $93 - x = 47$       2.  $x + 75 = -5$       3.  $-x + 10 = 5$

4.  $-5 + x = 11$       5.  $x - (-23) = -43$       6.  $-17 + x = -34$

7.  $-3x = 9$       8.  $12x = -48$       9.  $99 = 11x$

10.  $5x = 105$       11.  $16x = 176$       12.  $9x + 5 = 50$

13.  $11x - 6 = 115$       14.  $8 + 15a = 38$       15.  $-33 - 14x = -145$

16.  $45x - -2 = 92$       17.  $\frac{1}{5}x + 7 = 11$       18.  $x - \frac{5}{8} = 2\frac{3}{8}$

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### WORKSHEET 3-5

Solve the following.

1.  $\frac{54}{x} = 9$

2.  $\frac{x}{8} = 7$

3.  $\frac{48}{x} = 8$

4.  $\frac{x}{5} = 4$

5.  $\frac{144}{x} = 12$

6.  $\frac{56}{x} = 28$

7.  $\frac{28}{x} + 3 = 10$

8.  $8 + \frac{56}{x} = 15$

9.  $\frac{x}{6} - 2 = 4$

10.  $\frac{1}{3}x = 2$

11.  $\frac{200}{x} = 1$

12.  $\frac{1}{4}x = 4$

13.  $\frac{x}{2} - 2 = 3$

14.  $\frac{96}{x} + 9 = 17$

15.  $\frac{14}{x} = 14$

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### WORKSHEET 3-6

Solve for x in terms of y.

1.  $x + y = 24$       2.  $y + x = 18$       3.  $x + 8 = y$

4.  $x - 4 = y$       5.  $xy = 30$       6.  $\frac{x}{y} = 15$

7.  $17 + x = y$       8.  $\frac{y}{x} = 16$       9.  $\frac{x}{y} = 77$

Solve for y in terms of x.

10.  $\frac{48}{y} = x$       11.  $\frac{x}{y} = 4$       12.  $\frac{144}{y} = x$

13.  $5y = x$       14.  $9x + y = 50$       15.  $11x + y = 115$

16.  $x = 100y$       17.  $x = 41y$       18.  $x = y - 10$



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### WORKSHEET 3-7a

Write each ratio as a fraction.

1. The ratio of 3 to 7.
2. The ratio of 5 to 10.
3. The ratio of 8 to 3.
4. The ratio of  $\frac{1}{2}$  to 3. (Don't be afraid to have a fraction as a numerator)
5. A fisherman needs 12 pounds of weight for every 60 feet of fishing line. What is the ratio of weight to feet? Reduce your answer.
6. At the school dance, there were 40 boys and 20 girls. What is the ratio of boys to girls? Reduce your answer.
7. The votes were counted. There were 6 "yes" votes and 18 "no" votes. What is the ratio of yes to no votes? Reduce your answer.
8. The campers received one tent per four campers. What is the ratio of campers to tents? Write your answer in this format: 9:3.
9. A race car travels three miles in one minute. Another car drove one mile in one minute. Write a ratio that compares the distance of the race car to the other car.
10. A recipe for potato salad suggests using 3 potatoes for each serving. What is the ratio of potatoes per person?

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### WORKSHEET 3-7b

1. Write a ratio that shows 14 dog bones for 7 dogs. Then show how many dog bones per dog.
2. Write a ratio to help you calculate the cost per can of pop. A 6-pack of pop costs \$2.94. How much per can? Hint: your answer will be in cents, so your ratio should be in cents not dollars.
3. Write a ratio, using the ratio symbol ":" to show 2 teachers to 44 students.
4. Write two ratios to help you figure out which is the better value. You can spend \$249 for 100 t-shirts. Or you spend \$49 to buy 10 t-shirts. Find the price per t-shirt. Which is the better deal?
5. We traveled 444 miles in 3 days. How many miles did we travel per day?
6. Write three different phrases to describe this:  $\frac{1}{3}$   
\_\_\_\_\_
7. It cost \$45.92 for 15 gallons of gas. Write a ratio and then solve it to find the price per gallon.
8. Pat ran 3 miles in 20 minutes. How many miles did she run per minute?
9. Flo spent \$11.60 on 5 pounds of hamburger. How much does it cost for 1 pound of hamburger?

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### WORKSHEET 3-8a

Cross multiply and then solve for x.

1.  $\frac{40}{x} = \frac{5}{1}$

2.  $\frac{x}{16} = \frac{2}{8}$

3.  $\frac{54}{x} = \frac{6}{1}$

4.  $\frac{6}{36} = \frac{3}{x}$

5.  $\frac{24}{12} = \frac{x}{2}$

6.  $\frac{105}{5} = \frac{42}{x}$

7.  $\frac{\frac{2}{5}}{x} = \frac{10}{50}$

Solve for x.

8. 7 is to 21 as x is to 6.

9. 15 is to x as 30 is to 6.

10. X is to 100 as 9 is to 30.

11. 7 is to 2 as 14 is to x.

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### WORKSHEET 3-8b

Use Proportions to solve the following.

1. There are 3 feet in 1 yard. How many yards are in 120 feet?
2. There are 12 inches in 1 foot. How many inches are in 8 feet?
3. There are 16 ounces in 1 pound. How many pounds in 128 ounces?

$$\frac{15}{x} = 3$$

4. There are 3.28 feet in 1 meter. How many feet in 3 meters?
5. One gram equals .035 ounces. 14 grams equal how many ounces?
6. There are 2.54 centimeters in 1 inch. 5 inches equal how many centimeters?
7. There are 8 ounces in 1 cup and 16 cups in 1 gallon. How many ounces are in 1 gallon?

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WORKSHEET 3-9

1.  $6^2 =$

2.  $7^2 =$

3.  $8^2 =$

4.  $3^2 =$

5.  $2^2 =$

6.  $9^2 =$

7.  $10^2 =$

8.  $5^2 =$

9.  $4^2 =$

10.  $11^2 =$

11.  $1^2 =$

12.  $12^2 =$

13.  $3^2 + 3^2 =$

14.  $2^2 + 4^2 =$

15.  $5^2 + 3^2 =$

16.  $6^2 + 4^2 =$

17.  $8^2 + 7^2 =$

18.  $3^2 + 2^2 =$

19.  $4^2 \cdot 2 =$

20.  $5^2 \cdot 4 =$

21.  $6^2 \cdot x =$

22.  $6^2 \cdot \frac{1}{2} =$

23.  $4^2 \div \frac{1}{2} =$

24.  $2^2 \cdot 3^2 =$

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WORKSHEET 3-10

1.  $6^3 =$

2.  $7^3 =$

3.  $8^3 =$

4.  $3^3 =$

5.  $2^3 =$

6.  $9^3 =$

7.  $10^3 =$

8.  $5^3 =$

9.  $4^3 =$

10.  $11^3 =$

11.  $1^3 =$

12.  $12^3 =$

Solve the following. Read the exponents carefully.

13.  $3^3 + 3^2 =$

14.  $2^3 + 4^3 =$

15.  $5^3 + 3^2 =$

16.  $6^2 + 4^3 =$

17.  $8^3 + 10 =$

18.  $3^3 + 2^3 =$

19.  $5^3 \cdot 2 =$

20.  $5^3 \cdot 3 =$

21.  $4^3 \cdot y =$

22.  $2^3 \cdot \frac{1}{4} =$

23.  $3^3 \div \frac{2}{7} =$

24.  $4^3 \cdot 7^2 =$

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WORKSHEET 3-11

Solve the following.

1.  $5^2 =$

2.  $\sqrt{25} =$

3.  $6^2 =$

4.  $\sqrt{36} =$

5.  $8^2 =$

6.  $\sqrt{64} =$

7.  $2^2 =$

8.  $\sqrt{100} =$

9.  $9^2 =$

10.  $\sqrt{49} =$

11.  $\sqrt{121} =$

12.  $\sqrt{16} =$

13.  $\sqrt{144} - \sqrt{16} =$

14.  $\sqrt{4} + \sqrt{25} =$

15.  $\sqrt{49} \cdot \sqrt{36} =$

16.  $\sqrt{64} \cdot 2^2 =$

17.  $\sqrt{100} \div 5 =$

18.  $\sqrt{81} \cdot x = 36$

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CHAPTER 1 REVIEW TEST

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Solve for x.

1.  $29 + x = 104$

2.  $9x = 63$

3.  $\frac{x}{4} = 6$

4.  $\frac{48}{x} = 8$

5.  $\frac{10}{x} \cdot \frac{14}{1} = 70$

6.  $52 - x = 10$

7.  $-201 - 3x = -225$

8.  $\frac{1}{2}x + 12 = 10$

9.  $\frac{11}{x} = 11$

10.  $\frac{48}{x} + 12 = 24$

11.  $\frac{9}{x} + 6 = 9$

12.  $\frac{3}{5}x - 12 = -2\frac{2}{5}$

Solve for x in the following ratios.

13.  $\frac{5}{x} = \frac{10}{12}$

14.  $\frac{x}{32} = \frac{2}{8}$

15.  $\frac{72}{9} = \frac{8}{x}$

Solve for x in terms of y.

16.  $x + y = 325$

17.  $\frac{x}{8} = y$

18.  $x - 2 = y$

Solve the following.

19.  $6^2 + 4^2 =$

20.  $8^2 \cdot 10^2 =$

21.  $\sqrt{81} \cdot \sqrt{36} =$

22.  $5^3 \cdot y =$

23.  $2^3 \div \frac{1}{6} =$

24.  $\sqrt{100} \cdot 7^2 =$



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### WORKSHEET 3-12

Name each of the following as a term, an expression, or an equation.

1.  $3x$                       2.  $4x - 2x + 10$                       3.  $5y^2$
4.  $5y + x = 40$                       5.  $-10 + 2y - 7y + 8$                       6.  $\sqrt{64}$

Solve each of the following terms.

7.  $\sqrt{81} =$                       8.  $3^3 =$                       9. *If  $x = 4$ , then  $3x =$*

Solve the following expressions.

10.  $3^2 + 7 =$                       11.  $\sqrt{36} - 2^2 =$                       12. *If  $x = 5$ , then  $2x + 5x =$*

Solve for  $x$  in the following equations.

13.  $\sqrt{x} = 5$                       14.  $7x + 3 = 31$                       15.  $45 = 9x + 9$

Solve for  $m$  in the following equations.

16.  $8m + 2 = 58$                       17.  $\frac{m}{8} = 8$                       18.  $m^2 = 7$

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### WORKSHEET 3-13

Simplify each of the following expressions by combining like terms.

1.  $3y + 4y - 2x =$

2.  $4x - 2x + 3y - 2y =$

3.  $7y - 2x + 4y =$

4.  $6x - 5x + 8y + 2x =$

5.  $8m - 2m + 3r =$

6.  $7x + 7y + 7m + 3x =$

7.  $4x^2 + 3x^2 =$

8.  $8rst + 9rst + rst =$

9.  $5 + 7b^2 - 2 - 3b^2 =$

10.  $5xy + 7xy + 17xy^2 =$

11.  $3mn - mn =$

12.  $6xy^2 + 5xy^2 + 8xy^3 =$

13.  $18y + 2 =$

14.  $27rst + 33rst - 7rst + 4rs =$

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WORKSHEET 3-14

1.  $x^2 \cdot x^2 =$

2.  $x^3 \cdot x^4 =$

3.  $y^6 \cdot y^5 =$

4.  $xy^2 \cdot xy =$

5.  $abc^2 \cdot ab \cdot abc =$

6.  $xyz \cdot x^4y^3z =$

7.  $4x^2 \cdot 3x^3 =$

8.  $7ab^3 \cdot ab^3 =$

9.  $9a \cdot 3a =$

10.  $7x \cdot x^3 =$

11.  $x \cdot y =$

12.  $5x^3 \cdot 7y^4 =$

13.  $11y^2 \cdot 11xy^2 =$

14.  $x^{10} \cdot x^{10} =$

15.  $9abc^2 \cdot 3xyz^2 =$

16.  $14a^2 \cdot a =$

17.  $x \cdot y \cdot z \cdot z =$

18.  $a^2b^2c^2 \cdot abc =$

19.  $\frac{3}{5}x \cdot x =$

20.  $8^2 \cdot y^2 =$

21.  $21x^2 \cdot x^2 + 3y =$

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### WORKSHEET 3-15

Solve for x.

1.  $25x = (63 + 37)$

2.  $52 + x = (33 \cdot 3)$

3.  $x + (13 - 4) = 15$

4.  $(7 \times 3) + x = 126$

5.  $x + (5 \times 5) = 45$

6.  $6x = (14 + 16) \cdot 2$

7.  $(15 \div 3) + x^2 = 54$

8.  $\sqrt{25} + (3 \cdot 5) = 2x$

9.  $\sqrt{x} + (2^2 \cdot 3^2) = 45$

10.  $(x \cdot 3) + 2 = 29$

11.  $(12 \div 4) \cdot 2x = 54$

12.  $(-5 \cdot -5) \div x = 5$

13.  $\left(\frac{1}{4} + \frac{12}{16}\right) \cdot 2x + 3 = 5$

14.  $(x \cdot x) + 4 = 53$

15.  $[(12 + 14) \div 2] + 2x = 27$

16.  $[(7 \cdot 3) + 4] - 5 = 4x$

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### WORKSHEET 3-16

Solve for  $x$  in the equations below. Be sure to go in the proper order.

1.  $2^2 - x + (3 \cdot 2) = 8$

2.  $(4 \cdot 5) - 4^2 + x = 24$

3.  $3^2 + (8 \cdot 3) = 3x$

4.  $7x + 5x - (4 \cdot 2x) = 10^2$

5.  $2^3 - (6 \cdot x) = -4$

6.  $\frac{(9^2 + 3^2)}{x} = 9$

Find the value (the answer) for the expressions below.

7.  $\sqrt{9} + 2^2 - [20 - (6 \cdot 3)] =$

8.  $(7 - 5) \cdot 3^2 \cdot \sqrt{4} =$

9.  $\left(\frac{1}{2} + \frac{3}{8}\right) \cdot \left(\frac{2}{3} - \frac{1}{6}\right) \cdot 2^2 =$

10.  $\frac{\sqrt{100} \cdot 6^2}{2} =$

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### WORKSHEET 3-17

Find the value of the following expressions.

1.  $\sqrt{81} \cdot 4 + (\sqrt{4} + \sqrt{16}) =$       2.  $10^2 - 2 \cdot 5^2 + 2x =$

3.  $3x + 2x - [(6^2 + 4) \cdot 2] =$       4.  $4 \cdot (3 + 5) - \sqrt{49} \cdot \sqrt{4} =$

Solve for x in the following equations by getting x by itself.

5.  $3x + 7^2 - \sqrt{25} = 74$       6.  $56 - 5x = 11$

7.  $3^2 - x + (3 \cdot 2) = 11$       8.  $(x \cdot x) + 5^2 = 125$

Simplify the following expressions by combining like terms.

9.  $3x - 7x + x + 2y$       10.  $4x^2 \cdot 5x^2 + 2x + 6x$

11.  $6y \cdot 5y^2 - 6x + 7y^3$       12.  $3y^3 \cdot 2y^3 + 5y^6$

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### WORKSHEET 3-18

Solve the following by using the distributive property of multiplication.

1.  $2(6 + 9) =$

2.  $3x(2x - 3) =$

3.  $5x^2(2x + 5x^2) =$

4.  $20x^3(3x - 7x^2) =$

5.  $3x(y - x) =$

6.  $9^2(x + y) =$

7.  $-4(2x - 3) =$

8.  $-3a^2(a + b) =$

9.  $m(x + y) =$

10.  $5rs(6rs - rs) =$

11.  $ab(3a^2b - 4ab^2) =$

12.  $\frac{1}{2}(a + b) =$

13.  $-5x(x^3 - 2x^2) =$

14.  $-4a(3a - 2b) =$

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### WORKSHEET 3-19

Simplify the following expressions.

1.  $6(x + 3) + 2(5 - x) =$

2.  $3x(6 + 4) - 6x(2^2) =$

3.  $2x(2x + 3) + 4x(5x + 3) =$

4.  $-x(y - 2) + 4y(x - 3) =$

Solve for x in the following equations.

5.  $4x + 2x = 48$

6.  $3^3 - 4x + (6 \cdot 5) = 41$

7.  $3x(8 + 3) - 4^2 = 83$

8.  $\sqrt{x} = (7 \cdot 2^2) - (7 \cdot \sqrt{9})$

Find the value for each of the following 3 expressions. Be sure to follow the correct order of operations, PEMDAS.

9.  $(48 - 4) \div 2^2 + 2 \cdot 2^3 =$

10.  $(-20 + 4) \div 2^3 - 3 \cdot 4 =$

Solve for x in terms of y.

11.  $7 - x = y$

12.  $x + y = 20$

13.  $x \div 5 = y$

14.  $\frac{36}{x} = y$



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## CHAPTER 2 REVIEW TEST

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1. Which one of the following is a term?

$3xy$

$4y - 2y = 6y$

$8y^2 + 3x^3$

2. Which one of the following is an expression?

$4abc$

$4(x + 2) = 36$

$3ab + 4ab^2$

3. Which one of the following is an equation?

$3 + 5 = 8$

$4x - 3x$

$3xyz$

4. If  $x = 7$ , then what is:  $8x$

5. If  $x = 6$ , then what is:  $\frac{42}{x}$

6. Combine the like terms:  $2xy^4 - 4x + 6xy^4 + x - 3y + xy^4 =$

7. Solve for m.  $\sqrt{m} = 16$

8.  $xy^3 \cdot x^2 \cdot y^4 =$

9.  $4a \cdot 6a^2 \cdot b^3 \cdot b =$

10. Simplify the following:  $3(2a + 4b) =$

11. Solve for x:  $(x \cdot 4) + 5 = 17$

12. Solve for x:  $3(9 + x) = 45$

Chapter 2 Review Test page 2

13. Write out the proper order of operations below:

\_\_\_\_\_

Use the proper order of operations to solve the following 3 problems.

14.  $[(9 \cdot 5) + 5] - 3^2 \cdot 6 + 4 =$

15.  $(5^2 + 5 - 2^2) - \sqrt{81} \cdot 3 - 7 =$

16.  $\frac{(4^2 + 3^2)}{x} = 5$

Use the Distributive Property of Multiplication to simplify the following.

17.  $3rs(6r - 4s)$

18.  $\frac{1}{2}\left(4a + \frac{5}{7}b\right)$

19.  $4(6x + 3a) + 3(7a - 8x)$

20.  $9a(7a + 4a) + a(a - b)$

21.  $13a^2(ab + 4b) + 6a(2ab + b)$

22.  $-11xy^2(9y - xy) - 5x^4(2y - x)$

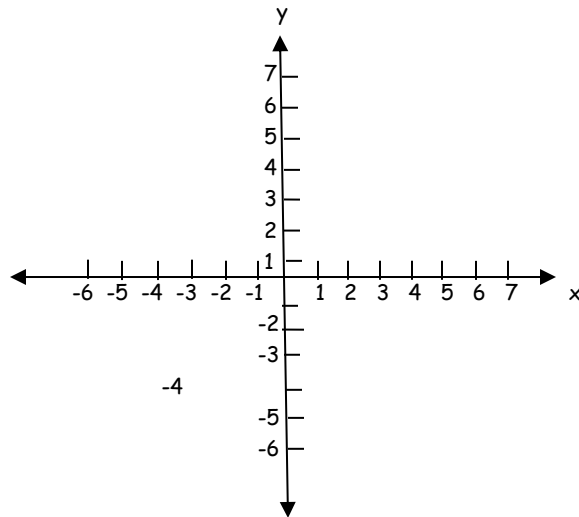
23. Vince played a basketball game last night at Mead High School. Every time he made a basket he scored 2 points. One time he made a half-court shot and scored 3 points! In total he made 39 points for his team and won the game. Solve the equation below to find out how many times he threw a "2-point" shot through the hoop.

$$2x + 3 = 39$$

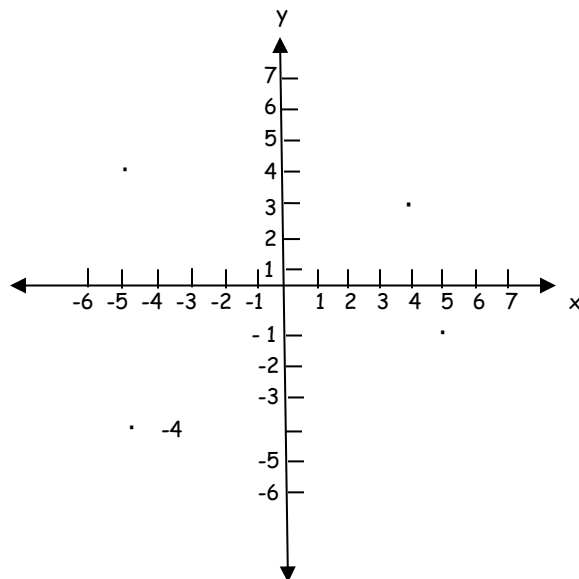
Name: \_\_\_\_\_ Date: \_\_\_\_\_

### WORKSHEET 3-20

1. Plot the following coordinate points on the graph below:  
(6, 7) (4, 4) (2, 3) (-3, -2) (-2, -5)



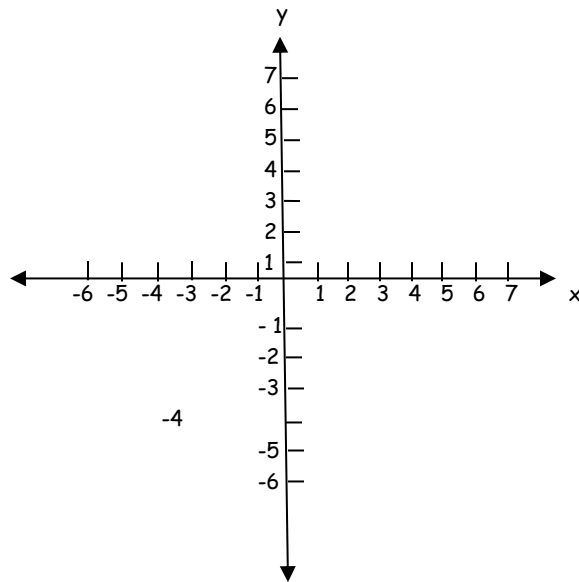
2. Below is a graph. Locate the 4 points and name them (x, y).



3. Which number in the coordinates (6, 7) refers to the y axis. Does the y axis go up and down or left to right?

## WORKSHEET 3-20 page 2

4. Below is a graph. Plot the following points and then connect the dots to make a straight line.  $(-4, -4)$ ,  $(-2, -2)$ ,  $(0, 0)$ ,  $(1, 1)$  and  $(5, 5)$ .



5. Look back at problem number 4. You drew a straight line to connect 5 different points. Name 3 other points that your line passes through.
6. Look at the graph above. If you have two negative coordinates such as  $(-3, -2)$  your point will always be located in:
- a. The upper right side.
  - b. The lower right side.
  - c. The upper left side.
  - d. The lower left side.
7. What does the phrase "Read X First" mean?

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### WORKSHEET 3-21

Use the following equations to find the missing y values for each table.

1.  $y = x + 3$

x	y
1	
2	
3	

2.  $y = 3x + 1$

x	y
1	
2	
3	

3.  $y = 2x - 2$

x	y
1	
2	
3	

4.  $y = 3x - 4$

x	y
1	
2	
3	

5.  $y = 2x - 5$

x	y
1	
2	
3	

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### WORKSHEET 3-22

Slope formula is  $m = \frac{y_2 - y_1}{x_2 - x_1}$

<u>Coordinates</u>	<u>Fill in formula</u>	<u>Do the math</u>
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(2, 2) and (7, 4)	$m = \frac{4-2}{7-2}$	$m = \frac{2}{5}$
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(-2, 4) and (4, 10)

(4, 1) and (10, 12)

(3, 2) and (5, 4)

(5, 7) and (3, -3)

(2, 5) and (7, 1)

(-3, 3) and (2, 3)

(-4, 2) and (3, -4)

Name: \_\_\_\_\_ Date: \_\_\_\_\_

### WORKSHEET 3-23

Below is a set of coordinates and a slope. Fill in the formula with the numbers given. Then simplify the equation you wrote and solve for b. The first one is done for you.

$$y = mx + b$$

<u>(x, y)</u>	<u>Slope</u>	<u>Formula filled in</u>	<u>Simplified</u>	<u>Solve for b</u>
(2, 4)	$m = \frac{1}{2}$	$4 = \frac{1}{2} \cdot 2 + b$	$4 = 1 + b$	$3 = b$
(0, 3)	$m = \frac{1}{2}$			
(1, 2)	$m = 1$			
(2, 3)	$m = 1$			
(5, 0)	$m = 4$			
(-2, 3)	$m = 0$			
(-4, -3)	$m = \frac{2}{3}$			
(5, -2)	$m = 2$			

Name: \_\_\_\_\_ Date: \_\_\_\_\_

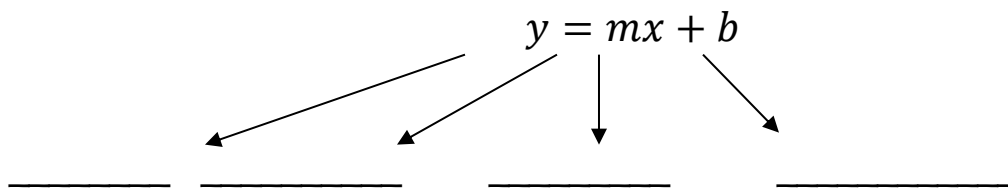
### WORKSHEET 3-24

1. I will give you the slope and the y intercept for several different lines. You practice filling in the formula, "y = mx + b" with these numbers, so we have an equation for each line. The first one is done for you.

$$y = mx + b$$

<u>Slope</u>	<u>Y intercept</u>	<u>Equation</u>
m = 2	b = 3	y = 2x + 3
m = 3	b = 1	
m = 6	b = 0	
m = $\frac{1}{2}$	b = 4	
m = 1	b = -3	
m = 5	b = -1	

2. Fill in the blanks. Write what each letter in the y intercept formula represents.



3. What is the y intercept?



Name: \_\_\_\_\_ Date: \_\_\_\_\_

### CHAPTER 3 REVIEW TEST

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Complete the 5 skills used to solve slopes.

1. Below is an equation. Use this equation to come up with 3 sets of coordinates for a line. Fill in the table with the y coordinates.

$$Y = 2x - 1$$

x	y
2	
3	
4	

2. Draw a graph and plot the points you found from the first problem. Connect the dots.
3. Use the slopes formula to find the slope of the line you drew on your graph.

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

4. Use the formula below to find the y intercept of your line. If your graph is drawn perfectly, you will see where the line intercepts the y axis.

$$Y = mx + b$$

5. Make an equation for a line that has these two coordinates:  
(2, 4) and (4, 8)

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## Final Test

Solve for x.

1.  $\frac{1}{2}x \cdot 8 = 32$

2.  $x + 7^2 = 62$

3.  $5^3 = x$

4.  $x(5 + 8) = 78$

5.  $5 + 6 \times 9 - x = 51$

6.  $\frac{x}{9} = \frac{4}{6}$

7.  $\frac{1}{3}x = \frac{7}{24}$

8.  $\sqrt{x} = 8$

9.  $\frac{75}{x} = 15$

10.  $x^2 = 81$

11.  $\frac{x}{7} = 10$

Use the Distributive Property of Multiplication to simplify the following.

12.  $3x(2x + 4y) + 7y(x - y) =$

13.  $-x(7x - 3y) + 6x(-y + 5x) =$

14.  $-3(a + b) + a(-2 + b) =$

15. Draw 3 tables and find 3 coordinates from these linear equations:

$$y = x - 4$$

$$y = 2x + 1$$

$$y = 3x - 1$$

16. Draw a graph and plot 3 points using this linear equation:  $y = 2x - 1$ .

17. Look at the graph you drew for problem 16. Connect the dots and find the slope of that line by using the slopes formula.

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

Name: \_\_\_\_\_ Date: \_\_\_\_\_

Final Test page 2

18. Find the y intercept of the line from problem 17 by using the y intercept formula:

$$y = mx + b$$

Look at the coordinates below and create a linear equation.

19. (2,3) (3,4)

20. (2,1) (5,5)

21. (2,3) (4,1)

22. What does it mean when the slope of a line is a negative number?

23. What does a linear equation make?

24. What is the y intercept?

25. What does each letter in the formula below represent?

