Summer Math Worksheet 1

Simplify.

1.
$$|-5|$$

 $= \overline{|5|}$
3. $5 - |12|$
 $= 5 - 12$
 $= \overline{|-7|}$
5. $\frac{|-8 - 12|}{|4|}$
 $= \frac{1 - 20|}{|4|}$
 $= \frac{-7 - 25}{4|-8|}$
 $= -\frac{7 - 25}{4|-8|}$
 $= -\frac{32}{32} = [-1]$
Convert each of the following.
7. $15 \text{ cm} = 0.15$ m
 ± 100
9. $1.23 \text{ cm} = 0.00125$ m
 ± 1000
10. $5.2 \text{ cm} = 0.0052$ km
 ± 1000
11. $480z = 3$ lb
 $12. 36yd = -\frac{1294}{240}$ in $e^{\frac{1}{2}}e^{\frac{1}{2}}d^{\frac{1}{2}}$
 $13. 6qt = -\frac{1}{5}$ gal
 $14. 10ft = -\frac{5}{3}$ yd $3Ft = 13^{\frac{1}{2}}d^{\frac{1}{2}}$

Blein=lyd

4qt=lgel ÷4

Summer Math

Worksheet 2 - Percents

Solve using the percent proportion. Round each answer to the nearest tenth if necessary.

1.	18 is 90% of what number?	x=20
	$\frac{18}{x} = \frac{20}{100} \qquad x = 20$	
	$9_X = 180$	
2.	What is 80% of 70?	X=56
	$\frac{\chi}{70} = \frac{\$9}{100}$	
	10x = 560 X = 56	
3.	4 is what percent of 2?	×=200%
	$\frac{2}{1}\frac{4}{2}=\frac{x}{100}$	
	X= 200	
4.	What number is 70% of 21?	X=14.7
	$\frac{\chi}{\omega_1} = \frac{70}{101}$	
	10X = M7 X = 14.7	
5.	11.5% of 70 is what number?	X = 8,05
	$\frac{\chi}{70} = \frac{11.5}{100}$	
	100X = 805 X=8.05	
6.	What percent of 70 is 0.28?	x = = %
	$\frac{0.28}{70} = \frac{\chi}{100}$	
	$70 \times = 28$ $\chi = \frac{2}{3}$	
7.	What is $\frac{1}{2}$ % of 400?	x=2
	$\frac{\chi}{400} = \frac{0.5}{100}$	
	100x=200	

8. 6.5% of 500 is what number?

$$\frac{\chi}{500} = \frac{6.5}{100}$$

100 x = 3250
 $\chi = 32.5$

9. 3.4 is what percent of 13.6? $\frac{3.4}{13.6} = \frac{x}{100}$ 13.6 x = 340

10. Forty-nine is what percent of forty-nine?

11. This year the population of Darlington County is 156% of its population 10 years ago. The population 10 years ago was 134,000. What is the population this year? Round to the nearest whole number.

$$\frac{\chi}{134,000} = \frac{156}{100}$$

$$100 \times = 20904000$$

$$\chi = 209040$$

209,040

12. The Davidson Bakery has 750 loaves of day-old bread they want to sell. If the price was originally \$1.49 a loaf and they sell it for \$1.19 a loaf, what percent discount, based on the original price, should they advertise?

$$\frac{\frac{1!+9}{1!+9} - \frac{1!}{1!0}}{\frac{1!}{1!0}} = \frac{1}{100}$$

$$\frac{\frac{0.3}{1!+9}}{\frac{1!}{1!00}} = \frac{1}{100}$$

$$\frac{1!+9}{1!00} = \frac{1}{100}$$



13. Rita's high school basketball team finished the season with a record of 15 wins and 9 losses. What percent of the games played were won?

$$5 \frac{15}{34} = \frac{\chi}{100}$$

$$8\chi = 500$$

$$\chi = 62.5$$

24total games

100%

x=25

 $\chi = 32.5$

14. Everything in a store is discounted 10%. The original price of an iPad is \$249.99. If the sales tax is 6%, how much does the customer owe in total?

$$\begin{array}{c} T_{15}(00^{10} - \frac{249.99 - \chi}{249.99} = \frac{10}{100} \\ 2499.9 - \frac{10\chi}{249.99} = \frac{10}{100} \\ -\frac{10\chi}{2499.9} - \frac{10\chi}{2249.99} \\ -\frac{10\chi}{224.99} = \frac{104}{100} \\ \frac{100\chi}{224.99} = \frac{104}{100} \\ \frac{100\chi}{224.99} = \frac{104}{100} \\ \frac{100\chi}{224.99} = \frac{104}{100} \\ \frac{100\chi}{224.99} = \frac{104}{100} \\ \frac{100\chi}{2238.4894} \\ \chi = 238.4894 \end{array}$$

15. If you use a 35¢ coupon to by a \$2.89 box of ice cream sandwiches, what percent off is this, to the nearest whole-number percent?

$$\frac{0.35}{2.89} = \frac{x}{100}$$

$$2.89x = 36$$

$$x = 12.11$$



30%

16. Sue's Sweaters buys a sweater for \$16.80. If the sweater is then resold in the store for \$21.84, what is the percent of markup based on the original cost?

$$\frac{21.84 - 16.80}{16.80} = \frac{x}{100}$$
$$\frac{5.04}{16.8} = \frac{x}{100}$$
$$16.8 = 504$$
$$16.8 \times = 504$$
$$16.8 \times = 504$$
$$16.8 \times = 504$$

17. Below is the budget Sue has made for the money she earns weekly from babysitting. Find how much Sue earns weekly and how much she plans to put towards her savings and clothes.

Food25%\$22.50Savings20%# 18Entertainment15%\$13.50Clothes40%# 36Clothes40%# 36Clothes22.50
$$\frac{25}{700}$$
 $\frac{2}{700}$ $\frac{10}{700}$ $\frac{10}{700}$ $\frac{2}{700}$ $\frac{2}{700}$ $\frac{10}{700}$ $\frac{2}{700}$ $\frac{10}{700}$ $\frac{10}{700}$ $\frac{2}{700}$ $\frac{10}{700}$ $\frac{10}{700}$ $\frac{25 \times = 2250}{\times = 90}$ $\frac{10 \times = 180}{\times = 18}$ $\frac{10 \times = 360}{\times = 36}$ Sue carns #90 a week. $\frac{50}{700}$ $\frac{90 - (22.50 + 18 + 13.50)}{90 - 54}$ 36

Worksheet 3 – Properties of Exponents Evaluate. No Calculator.

1.
$$\frac{m}{2n+1}$$
; for $m = 45$ and $n = 4$
 $\frac{45}{2(4)+1} = \frac{45}{8+1} = \frac{45}{9}$

2.
$$a(3b-8); \text{ for } a = 2 \text{ and } b = 5$$

2 $(3(5)-8)$
2 $(15-8)$
2 (7)
14

3.
$$x^{2} - y^{3} + z$$
; for $x = -5$, $y = 3$, and $z = -8$
 $(-5)^{2} - (3)^{3} + (-8)$
 $25 - 8 - 8$
 $25 - 16$
 9
4. $(y+1)(3-y)$; for $y = 5$
 -12

4.
$$(y+1)(3-y); \text{ for } y=5$$

 $(\overline{5}+1)(3-5)$
 $(6)(-2)$
 -12

5.
$$(2m)^3$$
; for $m = -1$
 $(2l-1)^3$
 $(-2)^3$
 -8

-8

5

14_____

Simplify. Write answers without negative exponents.



13. $(3m^4n^3)^2$ = $(3m^4n^3)(3m^4n^3)$



14.
$$\frac{5^{7}}{5^{3}}$$

$$5^{4}$$

$$5^{4}$$
15.
$$\frac{18x^{5}y^{2}z^{8}}{16x^{2}yz^{3}}$$

$$\frac{9}{8} \times^{3} y z^{5}$$

16.
$$\frac{-20a^2b^6c^4}{15a^6b^3c^9} \qquad \qquad \frac{-4b^3}{3a^4b^5}$$

17.
$$4p^{3}q^{2}-5p^{2}\overline{q^{3}}-9pq+p^{2}q^{3}-2p^{3}q^{2}$$
 $2p^{3}q^{2}-4p^{2}q^{3}-9pq$

18.
$$(6x^4 - x^3 - 7x^2 + 14x + 11) + (8x^3 - 10x^2 - 2x + 3)$$

 $6x^4 - x^3 - 7x^2 + 14x + 11) + (8x^3 - 10x^2 - 2x + 3)$
 $6x^4 - x^3 - 7x^2 + 14x + 11 + 8x^3 - 10x^2 - 2x + 3$

19.
$$(5y^3 - 13y^2 + 15) - (2y^3 + 7y^2 - 6y - 17)$$

 $5y^3 - (3y^2 + 15) - 2y^3 - 7y^2 + 6y + 17$

Worksheet 4 – Scientific Notation

1. The wavelengths of x-rays, in centimeters, is 3.048×10^{-9} . Write this number in standard form.

0.000000003048

- 2. One of the nearest stars, Alpha Centauri, is about $3^{\cancel{3}}, 0^{\cancel{3}}, 0^{\cancel{3}},$
- 4. A speck of dust in an electron microscope is 1.2×10^2 millimeters wide. The image is 5×10^2 times larger than the actual size. How many millimeters wide is the actual image?

$$\frac{1.2 \times 10^2}{5 \times 10^2} = 0.24 mm$$

60min=1hon-

5. The speed of light is approximately 6.71×10^8 miles per hour. How many miles will light travel in 1 minute?

$$\frac{6.71 \times 10^8 \text{ miles}}{\text{hohr}} \cdot \frac{1 \text{hohr}}{60 \text{ min}} = 1.118 \times 10^7$$

6. If it takes light 8.3 minutes to reach Earth from the Sun, what is the distance from the Sun to Earth? 9. $28 \times 10^7 \text{ m/les}$

d=rt $\int = (1.118 \times 10^{7})(8.3)$ $\int = 9.28 \times 10^{7}$

Worksheet 5 – Square Roots Simplify each of the following expressions. No calculators.

1.
$$\sqrt{9} = \boxed{3}$$

3. $4\sqrt{49}$
 $= 4(7)$
 $= \boxed{28}$
5. $\sqrt{81} + \sqrt{121}$
 $= \boxed{29}$
Estimate the following values to the nearest tenth.
2. $\sqrt{100} = \boxed{10}$
4. $\frac{\sqrt{64}}{16} = \frac{8}{16}$
6. $2\sqrt{400} - 3\sqrt{25}$
 $2(20) - 3(5)$
 $4b - 15$
 $\boxed{25}$

7.
$$\sqrt{8} \approx \boxed{2.8}$$

9.
$$\sqrt{8} = \boxed{2\sqrt{2}}$$

11.
$$\sqrt{x^2} = \sqrt{x}$$

13.
$$\sqrt{\frac{24x^4y^{10}}{4b}}$$
$$= \sqrt{\frac{2x^2y^5\sqrt{6}}{5b}}$$

$$\frac{\sqrt{64}}{16} = \frac{8}{16} = \sqrt{\frac{1}{2}}$$

$$\sqrt{80} \approx \boxed{8.9}$$

8.

10.
$$\sqrt{45} = 3\sqrt{5}$$

9 5

12.
$$\sqrt{a^8} = \sqrt{a^4}$$

14.
$$2\sqrt{49a^{10}b^{8}}$$

Add or subtract the following expressions.

$$15. \quad 4\sqrt{3} + 7\sqrt{3}$$
$$= \sqrt{11\sqrt{3}}$$

$$\begin{array}{rcl} 17. & 4\sqrt{13} - 9\sqrt{13} \\ = & \int -5\sqrt{13} \end{array}$$

$$16. \quad 6\sqrt{11} + 8\sqrt{11}$$
$$= \sqrt{14}\sqrt{11}$$

18.
$$3\sqrt{18} - 2\sqrt{50} + \sqrt{32}$$

 4^{2} 2^{5} 2^{16} 2^{5}
 $9\sqrt{2} - 10\sqrt{2} + 4\sqrt{2}$
 $3\sqrt{2}$

Order from least to greatest.

19.
$$8, \sqrt{41}, 9, \sqrt{56}, \sqrt{65}, 6$$

 $\approx 6.4 \quad 7.4 \quad 8.1$

 $6, \sqrt{41}, \sqrt{56}, \sqrt{65}, 6$

 $20. \quad \sqrt{91}, 9, \frac{79}{7}, 9.0002$

 $9.6 \quad ||^{2}_{\frac{1}{2}}$

 $9, 9,0002, 9.6, \frac{79}{7}$

21. If
$$\bigcirc \cdot \bigcirc \cdot \bigcirc \cdot \bigcirc = 256$$
, then what is \bigcirc equal to?

Find the missing side of the right triangle. No Calculators.

22.
9

$$(9)^{2} + b^{2} = (15)$$

 $(9)^{2} + b^{2} = 225$
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 $(15)^{2} + b^{2} = 225$
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 $(25)^{2} + (15)^{2}$



Draw a diagram and solve.

26. A 15-ft ladder is placed against a wall with the bottom of the ladder 60 inches from the base of the wall. Find how far up the wall the ladder will reach to the nearest foot. 60; where = 55t



27. Betty wants an ivy vine to grow on a section of fence in her front yard. To give the plant extra support, she decides to run a wire diagonally upwards from ground level at one end to the top of the other end of the section of fence. This section of fence has a length of 1.2 meters and a height of 90 cm. How long will the wire need to be? 90 cm = 0.9 m



The wire will need to be 1.5 m long.

14 Scet

Worksheet 6 – Algebraic Expressions

Let x = the number. Write an algebraic expression.

- 78-X 1. Seventy-eight decreased by a number
- Seven more than the product of a number and 5 2.
- Sixteen less than the quotient of a number and 3 3.
- 4. Three times the sum of twice a number and 9
- Nine times the difference of half a number and 4 5.

Write word phrases for these expressions.

10.
$$\frac{k}{2}-9$$
 Nine less than the gnotient of a number and two

$$\frac{\frac{\chi}{3}}{3} - 16$$
$$3(2 \times + 9)$$

5x+7

Simplify.

11.
$$6x+3(2x+7)$$

 $6x+6x+7$
 $2x+7$

13.
$$12-5(2-m)+7m$$

 $12-10+5m+7m$



14.
$$6(y-4)+10(2y+3)$$

 $by-24 + 20y + 30$
 $2by + 6$

$$15. -3(4k-5)+2k-(-13k+5) = 3k + 10$$

-12k+15+2k+13k - 5

16.
$$4(9n-1)+5(3n+7)-6(n-7)$$

 $36n-4+16n+35-6n+42$
 $45n+73$

Worksheet 7 – One-Sided Equations Solve each equation. No Calculators.

1.
$$2n-5=17$$

 $2n = 22$
 $p = 11$
3. $\frac{2}{3}m+12=28$
 $m = 24$
 $m = 24$
5. $10(0.3m-8.4=7.2)$
 $3m - 94 = 72$
 $7. \frac{y}{2} + 13 = 17$
 $8. \frac{n+3}{3} + 7 = -6$
 $\frac{3(n+3)}{126} = -13 \cdot \frac{3}{1}$
 $n + 3 = -237$
 $\boxed{n = -42}$
9. $-3(y+4)=6$
 $-3y - 12 = 6$
 $4p + 9 - 2(1-p) - 4p = 0$
 $4p + 9 - 2(1-p) - 4p = 0$
 $4p + 9 - 2(1-p) - 4p = 0$
 $4p + 9 - 2(1-p) - 4p = 0$
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 $4p + 9 - 2(1-p) - 4p = 0$
 $4p + 9 - 2(1-p) - 4p = 0$
 $2p = -6$
 $2p = -6$
 $2p = -6$
 $2p = -6$

2/2

$$6+8-2+2p-4p=0$$

 $2p+6=0$
 $2p=-6$
 $P=-3$

Worksheet 8 – Two-Sided Equations Solve. No Calculators.

1. 6y+3=8y+p -6y-2-6y-2y 1=2y 2ln - 20 = 18 2ln - 2ln = 38 $2n = 1\frac{2}{21}$ $1 = 1\frac{1}{21}$ 1 = 12(p+40) 4p+20 = 2p+802p = 60

9.
$$\Psi\left(5c - \frac{1}{4} = 4c + \frac{3}{4}\right)$$

$$20c - 1 = 16c + 3$$

$$4c = 4$$

$$\int c = 1$$

2.
$$6(c-2)+4c=8c$$

 $bc - i2 + 4c = 8c$
 $\sqrt{bc} - i2 = 8c$
 $-i0c$
 $-i2=-2c$
4. $-12(x+3)+2=6(x-1)+8$
 $-i2x-3b+2 = 6x-6+8$
 $-x2x-34 = 6x+2$
 $x = -2$
 $x = -2 + i2x - 2$
 $-3b = 18x$
6. $\frac{i2}{(-\frac{1}{12}+\frac{3}{4}x=\frac{7}{3})}$
 $-1 + 9x = 2.8$
 $9x = 2.9$
 $\sqrt{x} = 3^2/9$
8. $2(5w-7) = 9w+17$
 $i\omega = -17$
 $i\omega = -17$

* =3

11.
$$7(-3x-2)+4(1-x)=9(2x-5)-3(x-5) \quad 12. \quad 2^{20}\left(\frac{2}{5}(a+10)=\frac{1}{4}(a+20)\right)$$
$$-21\times-14+4-4\times=18\times-45-3\times+15$$
$$-25x-10=15\times-30$$
$$-40\times=-20$$
$$\begin{bmatrix} x=\frac{1}{2} \end{bmatrix}$$
$$8(a+10)=5(a+20)$$
$$8a+80=5a+100$$
$$3a=20$$
$$\begin{bmatrix} x=\frac{1}{2} \end{bmatrix}$$

Worksheet 9 - Word Problems

Write an equation and solve. Write answers in a complete sentence.

1. Find three consecutive integers whose sum is 66.

X

Let
$$x = 12^{4}$$

 $x + 1 = 22^{4}$
 $x + 2 = 35^{4}$
 $x + 2 = 35^{4}$
 $x + 2 = 35^{4}$
 $x = 63$
 $x = 21$

2. Find three consecutive even integers whose sum is -186.

3. Nine less than three times a number is twenty-seven. What is the number?

let
$$X = He$$
 number $3x - 9 = 27$ [Le number is)
 $3x = 36$
 $X = 12$

4. Find four consecutive odd integers such that the sum of the least integer and the greatest integer is 164.

The integers are 79, 81, 83 and 85.

5. One number is six times a second number. Their sum is 133. Find the numbers.

 $\begin{bmatrix}
 d x &= 1 \\
 d x &= 2 \\
 d x &= 2 \\
 x &= 12 \\
 x &= 13 \\
 x &= 19
 \end{bmatrix}$

The number me 19 and 114.

6. The difference of two numbers is 16. The first number is five times the second number. Find the numbers.

$$U + x = 1 = 5x - x = 16$$

$$5x = 2^{-1} = 4x = 16$$

$$x = 4$$

The integers are 4 and 20,

7. Thirty decreased by three times a number is six less than three times the number. Find the number.

Let x = the number 30 - 3x = 3x - 6 The number is six. 36 = 6x6 = x

8. Four times the sum of a number and three is seven times the number decreased by three. Find the number.

Let x = the number 4(x+3) = 7x-3 The number is five. 4x+12 = 7x-3 15 = 3x5 = x

9. A gallon of milk, bread, and a bag of fruit cost \$15.20 at the market. Milk was \$2.59, and two loaves of bread together were \$4.30. How much did the fruit cost?

Let
$$x = cost f_{f}$$
 fruit
 $2.59 + 4.30 + x = 15.20$ The bag of fruit
 $6.89 + x = 15.20$ cost # 8.31.
 $x = 8.31$

10. Cathy is 6 inches taller than her brother Marcus. Find Marcus' height if together they are 11.5 feet tall.

Let m = Marcus' height m + m + 6 = 138 (doinches = 5.55t) m + 6 = Carthy's height 2m + 6 = 138 11.5 + t = 138 inches 2m = 132m = 66

11. If $\frac{3}{4}$ pound of meat costs \$3.90, what does one pound cost?

1 t x=cost

 $\frac{.75}{1} = \frac{3.9}{x}$ $\frac{.75x}{.75x} = 3.9$ x = 5.2 Dec pound costs \$45.20.

12. A new car sells for \$12,500, which is \$500 more than 15 times the cost of a canoe. What is the cost of the canoe?

Let c = coot/canoe 15c + 500 = 12,50015c = 12,000c = 800

A canve costs \$\$800.

13. If Sarah was driving a race car at 200 kilometers per hour, what was her speed in miles per hour? (1 mile = 1.6 kilometers)

$$\frac{200 \text{ km}}{1 \text{ h}} \cdot \frac{1 \text{ mi}}{1.6 \text{ km}} = 125$$

14. Eileen practiced her piano 15 minutes longer on Sunday than on Saturday. If she practiced a total of 41 minutes this weekend, how long did she practice each day?

Let
$$x = 5at$$
.
 $x + x + 15 = 41$
 $x + 15 = 5an$
 $2x + 15 = 41$
 $2x + 15 = 41$
 $2x = 26$
 $x = 13$
 $x = 13$
 $x = 13$
 $x + x + 15 = 41$
 $and 28$
 $and 30$
 a

15. One large container weighs 2.5 kg less than the other. The weight of both together is 121.5 kg. What is the weight of each container?

Let
$$x = \text{Neight } first$$
 $x + x - 2.5 = 121.5$
 $x - 2.5 = \text{Neight } first$ container weighs
 $2x - 2.5 = 121.5$
 $2x = 124$
 $x = 62$
Let $x = 124$
 $x = 62$
Let $x = 124$
 $x = 62$
Let $x = 124$
 $x = 62$

16. The sum of an even integer and twice the next greater even integer is eight more than four times the greater integer. Find the lesser integer.

Worksheet 10 – Inequalities Solve each inequality.

2. $-\frac{\lambda}{-4}m < 32$ 1. $\oint x \ge -24$ x 2-4 m > -8 $3. \frac{-1}{3}, -3y \ge \frac{3}{8}, \frac{-1}{3}$ 27 > -10n + n4. 27>-9n -9 -9 y = -1/8 -32 N 5. $-4 + 8x \le 46$ 43-14b<14b-13 +13+14b+13 6. 56228b \$x ≤ 4D 8 246 x = 5 7. $5 - \frac{3m}{5} < -15.5$ 8. $\frac{k}{5-3} = -13$ m < -75 5 K - 16.5 ML-25 K>-80

Solve. Graph the solution set on the number line.

9. 3x+11-8x-5<-21 -5x+42-21 -6-5k-27x > 27/5

10.
$$9-12y+4+6y > -5$$

 $-13 - 6y > -5$
 $-13 - 6y > -13$
 $-6y > -18$
 $y < 3$

11.
$$-\frac{1}{4} + \frac{1}{4} +$$

Write an inequality and solve.

 $x > \frac{1}{3}$

14. Twice a number, subtracted from 35 is greater than 15. Let x = He number $25 = 24 \times 15$ All real numbers

35-2x>15 All real numbers less 2x5-20 than 10. x~10

15. Betty bowled 146 and 201 in her first two games at a local tournament. What must she bowl in her third game to have an average of at least 180?

Let
$$x = 3 \leq d_{game}$$

$$\frac{146 + 201 + \chi}{3} \geq 180$$
Betty must boul at least a 193.
 $347 + \chi \geq 540$
 $\chi \geq 193$

Worksheet 11 – Geometry

Solve each problem. Be sure to show the appropriate work.

1. Find the circumference of a circle with a radius of 42 mm. Use $\frac{22}{7}$ for π .

$$C = 2\pi r$$
 $C = 2(\frac{22}{7})(\frac{42}{7})$
 $C = 264 \text{ mm}$

2. Find the volume of a rectangular prism that is 14 cm by 18.5 cm by 25.4 cm.

$$V = lwh \qquad V = (14)(18,5)(25,4) \\ V = 6578.6 \text{ cm}^3$$

3. An angle is fifteen degrees less than nine times its supplement. Find the measure of both angles.



4. An angle is six degrees more than half its complement. Find the measure of both angles.



5. The base angles of an isosceles triangle are three more than seven times the vertex angle. Find the measure of all three angles in the triangle.



6. Find the perimeter of a right triangle if one leg is 24 cm and the hypotenuse is 30 cm.





9. What is the measure of one exterior angle in a regular decagon? 10 sides = $10 \times = 1440$ $10 \times = 1440$ $10 \times = 1440$ $10 \times = 1440^{\circ}$

10. How many sides does a polygon have if the sum of its interior angels is 2160°

$$186(n-2) = 2160$$

 $n-2 = 12$
 $n = 14 sides$

Worksheet 12 – Graphing State the quadrant in which each ordered pair can be found.

1.

$$(-3,6)$$
 \blacksquare
 2.
 $(4,17)$
 \blacksquare

 3.
 $(0,6)$
 $\underbrace{\P-AXi5}$
 4.
 $(-5,-11)$
 \blacksquare

 5.
 $(-3,0)$
 $\underbrace{X-AXi5}$
 6.
 $(5,-9)$
 \blacksquare

Write each equation in slope-intercept form. State the slope and y-intercept.

7.
$$3x + 4y = 16$$

 $4y = -3x + 16$
 $y = -\frac{3}{4}x + 4$
8. $6y + 3x = 15$
 $6y = -3x + 15$
 $y = -\frac{1}{2}x + \frac{5}{2}$
 $y = -\frac{1}{2}x + \frac{5}{2}$

9.
$$8x - 12y - 24 = 0$$

 $8x - 24 = 12y$
 $\frac{2}{3}x - 2 = y$

10.
$$-5x-3y = 24$$

 $-3y = 5x + 24$
 $y = -\frac{5}{3}x - 8$

11.
$$\frac{1}{2}y + \frac{3}{8}x = 5$$
$$2\left(\frac{1}{2}y = -\frac{3}{8}x + 5\right)$$
$$y = -\frac{3}{4}x + 10$$

$$y = \frac{2}{3}x - 2, m = \frac{2}{3}, b = -2$$

$$y = \frac{-3}{4}x + 10$$
, $m = -3/4$, $b = 10$

Find the slope of the line.



- 14. (4, 7) and (6, 11) $m = \frac{11 - 7}{6 - 4} = \frac{4}{2} = 2$ 15. (2, 4) and (3, -2) $m = \frac{-2 - 4}{3 - 2} = \frac{-6}{1} = -6$
- 16. (-5, -8) and (2, 4) $M = \frac{4+8}{2+5} = \frac{12}{7}$ 17. (-6, 5) and (2, 5) $M = \frac{5-5}{2+6} = \frac{0}{8} = 0$
- 18. (3, -12) and (-8, -7) $m = \frac{-7 + 12}{-8 - 3} = \frac{-5}{-11}$ 19. (7, 0) and (-1, 4) $m = \frac{4 - 0}{-1 - 7} = \frac{4}{-8} = -\frac{1}{2}$
- 20. (-9, 3) and (-9, -7) $m = \frac{-7 - 3}{-9 + 9} = \frac{-10}{0} = undefined$ $m = \frac{-3 + 15}{20 - 2} = \frac{12}{18} = \frac{2}{3}$

Worksheet 13 – Graphing

Complete the table of values for each equation and graph.

1.
$$y = x + 2$$





2.
$$y = -2x$$



$$3. \qquad y = -\frac{1}{2}x + 1$$





4. y = 3x - 1



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(20) (4,-1) Find the *x*- and *y*-intercepts for each liner equation.

5. 6x - 12y = 18<u>x-int</u>: Let y = 0 y - int: Let x = 0 6x = 18 -12y = 18 x = 3 $y = -\frac{3}{2}$ (3_{10}) $(0_{1} - \frac{3}{2})$

6.
$$3y + 2x - 15 = 0$$

x-int: Let $y = 0$ y-int: Let $x = 0$

7.
$$10y - 12x = -30$$

 $\frac{x - int}{2}$: Let $y = 0$ $y - int$: Let $x = 0$
 $-12x = -30$ $10y = -30$
 $x = \frac{5}{2}$ $y = -3$
 $(5_{2}, 0)$ $(0_{1} - 3)$

8.
$$-5x+3y=45$$

x-int: Let y=0
 $-5x=45$
 $x=-9$
 $(-9,0)$
y-int: Let x=0
y=15
 $(0,15)$

9.
$$7x-4=24$$

 $x-int:$ Let $y=0$ $y-int:$ Let $x=0$

$$7x - 4=24$$

 $7x=28$
 $x=4$
 $(4,0)$
 $-6=3x=30$

10.
$$-6 = 3y - 30$$

x-int: Let $y=0$ $y-int$: Let $x=0$
No $x-iAt$
 $24 = 3y$
 $8 = y$
 $(0,8)$

(3,0)/(0,-3/2)

(15/2, 0) / 10, 5)

 $(\frac{5}{2},0)/(0,-3)$

(-9,0)/(0,15)

(4,0) / None

None (0,8)

Graph each equation using *x*- and *y*-intercepts. Label the intercepts.

1.
$$3x-6y=12$$

 $3x = /2 - 6y = 12$
 $x = 4 - 2 - 2$
 $(4_1 \circ) - (0_1 - 2)$

12.
$$4x + 2y = 16$$

11.

$$4x = 16 \qquad 2y = 16 x = 4 \qquad y = 8 (4,0) \qquad (0,8)$$



Worksheet 14 – Graphing Linear Equations

Graph using any method.













Worksheet 15 – Systems of Linear Equations

Determine whether or not each ordered pair is a solution to the given system. Show Work.

1.
$$x + y = 4$$

 $2x + y = 5; (1,3)$
 $1 + 3 = 4$
 $4 = 4 \checkmark$
 $2(1) + 3 = 5$
 $2 + 3 = 5$
 $3 - 2(-2) + 2 = 6$
 $4 + 2 = 6$
 $4 + 2 = 6$
 $4 + 2 = 6$
 $4 + 2 = 6$
 $4 - 2(-2) + 2 = 6$
 $4 + 2 = 6$
 $4 - 2 - 2 = -3$
 $-4 \neq -3$
No

Solve each system by graphing.

3.
$$\begin{array}{c} x + y = 1 \\ x - y = -3 \end{array}$$
 Solution:
$$\begin{array}{c} (-l_1 2) \end{array}$$

$$\begin{array}{c} y = -x + 1 \\ b = 1 \end{array}$$

$$\begin{array}{c} y = -x - 3 \\ m = -l \\ b = 3 \end{array}$$

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

 $y = -3x - 5$
 $y = 3x + 1$
 $y = -3x - 5$
 $m = 3$
 $b = 1$
 $b = -5$
Solution: $(-1, -2)$
 $y = -3x - 5$
 $(-1, -2)$
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5.
$$y = 2x + 1$$
$$2y = 4x - 10$$
$$y = 2x + 1$$
$$2y = 4x - 10$$
$$m = 2$$
$$y = 2x - 5$$
$$b = 1$$
$$m = 2$$
$$b = -5$$

Solution: No Solution

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6.
$$y = 2 + x$$

 $x + 3y = 18$
 $y = 2 + x$ $x + 3y = 18$
 $m = 1$ $3y = -x + 78$
 $b = 2$ $y = -\frac{1}{3}x + 6$
 $m = -\frac{1}{3}x + 6$
 $b = -6$



7.
$$y = \frac{1}{3}x - 4$$

 $3y = -12$
 $y = \frac{1}{3}x - 4$
 $y = -12$
 $y = \frac{1}{3}x - 4$
 $y = -12$
 $y = -12$
 $y = -4$
 $y = -10$
 $y = -4$
 $y = -10$
 $y =$



Worksheet 16 – Linear Inequalities

Graph each linear inequality.

Solve by graphing.

7. $x + y \le 2$ $2x + 3y \le 3$

8. 3x - y < 2-4 + y < 5

