**Chapter 2 Test Review Sheet**

**Name:** Answer Key **Date:**

Identify the terms, factors and coefficients of the following equations. (3 Points)

1). $-15 + 9y - 6z$

Terms: $-15$, $9y$, $-6z$

Factors: $-15$, $9 \cdot y$, $-6 \cdot z$

Coefficients: $9$, $-6$

2). $10d + 3a - 15b$

Terms: $10d$, $3a$, $-15b$

Factors: $10 \cdot d$, $3 \cdot a$, $-15 \cdot b$

Coefficients: $10$, $3$, $-15$

Interpret the parts of the following expression (2 points)

3). Vandan is buying fruits and vegetables. He buys *W* apples for \$.50 per apple and *Z* carrots for \$.05 per carrot. What does the expression $.50w + .05z$ represent?

$.50w \Rightarrow$ .50 price per apple, w # of apples

$.05z \Rightarrow$ .05 price per carrot, z # of carrots.

Create and expression for the following algebraic models. Simplify your expression. (2 points)

4). The price of an item plus 15% sales tax.

$p + .15(p)$

$1.15(p)$

5). The price of a house plus 30% closing costs.

$h + .3(h)$

$1.3(h)$

Solve the following expressions. (3 Points)

6). $2x + 60 = 150$

$-60 \quad -60$

$\frac{2x}{2} = \frac{90}{2}$

$x = 45$

7). $\frac{2}{5}x + 8 = 3$

$-8 \quad -8$

$\frac{5}{2}\left(\frac{2}{5}(x)\right) = -5\left(\frac{5}{2}\right)$

$x = -\frac{25}{2}$

Create and solve an algebraic expression for each word problem. (3 points)

8). One month, Molly worked 3 hours more than Dylan, and max worked 4 times as many hours as Molly. Together they worked 80 hours. Find the number of hours each person worked.

Molly: $x+3$
Dylan: $x$
Max: $4(x+3)$

$x + x + 3 + 4(x+3) = 80$
$x + x + 3 + 4x + 12 = 80$
$6x + 15 = 80$
$-15 \quad -15$
$\frac{6x}{6} = \frac{65}{6}$
$x = 10.83$

Dylan: 10.83
Molly: 13.83
Max: 55.32

9). One moving company charges $200 plus $10 per hour. Another moving company charges $150 plus $20 per hour. At what number of hours will the charge by both companies be the same? What is the charge?

$200 + 10(x) = 150 + 20(x)$
$-10(x) \quad -10(x)$
$200 = 150 + 10(x)$
$-150 \quad -150$
$\frac{50}{10} = \frac{10(x)}{10}$
$5 = x$

Company 1: $200 + 10(x)$
Company 2: $150 + 20(x)$

$200 + 10(5)$
$200 + 50$
250

10). Nick plans to make a down payment plus monthly payments in order to buy a motorcycle. At one dealer she would pay $1500 down and ~~$75~~ 100 each month. At another dealer, she would pay $2000 down and ~~$100~~ 50 each month. After how many months would the total amount paid be the same for both dealers? What would that amount be?

Company #1: $1500 + 100(x)$
Company #2: $2000 + 50(x)$

$1500 + 100(50)$
$1500 + 1000$
2500

$1500 + 100(x) = 2000 + 50(x)$
$-50(x) \quad -50(x)$
$1500 + 50(x) = 2000$
$-1500 \quad -1500$
$\frac{50(x)}{50} = \frac{500}{50}$
$x = 10$

11. The perimeter of a parallelogram is 200 meters. The width of the parallelogram is 10 meters less than its length. Find the length and the width of the parallelogram.

Total: 200
Width: $x-10$
length: $x$

$2(x) + 2(x-10) = 200$
$2x + 2x - 20 = 200$
$+20 \quad +20$
$\frac{4x}{4} = \frac{220}{4}$
$x = 55$

length: 55
Width: 45

12). Kim works 4 hours more each day than Jill does, and Jack works 2 hours less each day than Jill does. Over 2 days, the number of hours Kim works is equal to the difference of 5 times the number of hours Jack works and the number of hours Jill works. How many hours does each person work each day?

| | Hours Per Day | Hours over 2 days |
|---|---|---|
| Kim | $x+4$ | $2(x+4)$ |
| Jill | $x$ | $2x$ |
| Jack | $x-2$ | $2(x-2)$ |

Jill = 4.6
Kim = 8.6
Jack = 2.6

$$\text{Kim} = 5(\text{Jack}) - (\text{Jill})$$
$$2(x+4) = 5(2(x-2)) - 2x$$
$$2x+8 = 5(2x-4) - 2x$$
$$2x+8 = 10x - 20 - 2x$$
$$2x+8 = 8x - 20$$
$$-2x \quad -2x$$
$$8 = 6x - 20$$

$$8 = 6x - 20$$
$$+20 \quad +20$$
$$\frac{28}{6} = \frac{6x}{6}$$
$$4.6 = x$$

Solve the following equations for the indicated variable. (2 Points)

13). Solve for P.

$4P + 10R = Q$
$-10R \quad -10R$

$$\frac{4p}{4} = \frac{Q-10R}{4}$$
$$p = \frac{Q-10R}{4}$$

14). Solve for P.

$\frac{2}{3}(P+9) = Y$

$$\frac{3}{2}\left(\frac{2}{3}(P+9)\right) = Y\left(\frac{3}{2}\right)$$
$$P+9 = \frac{3}{2}Y$$
$$-9 \quad -9$$
$$P = \frac{3}{2}Y - 9$$

15). Solve for W

$$\frac{m}{TC} = \frac{WTC}{TC}$$
$$\frac{m}{TC} = W$$

16). The formula $c = 5p + 215$ relates c, the total cost in dollars of hosting a birthday party at a skating rink, to p, the number of people attending. If Allie's parents are willing to spend $250 for a party, how many people can attend?

Solve the Equation for p

$$c = 5p + 215$$
$$-215 \quad -215$$
$$\frac{c-215}{5} = \frac{5p}{5}$$
$$\frac{c-215}{5} = p$$

Substitute Values Into New Equation

$$\frac{250-215}{5} = p$$
$$\frac{35}{5} = p$$
$$7 = p$$

Solve and graph the following Inequalities. (3 Points)

17). $6 + 3(x + 2) \leq 24$

$6 + 3x + 6 \leq 24$

$3x + 12 \leq 24$

$-12 \quad -12$

$\frac{3x}{3} \leq \frac{12}{3}$

$x \leq 4$


18). $x + 2 > -2(6 - 1x)$

$x + 2 > -12 + 2x$

$-x \quad\quad -x$

$2 > -12 + x$

$+12 \quad +12$

$14 > x$


19). The school band will sell pizzas to raise money for new uniforms. The supplier charges $75 plus $5 per pizza. The band members sell the pizzas for $10 each. Write, solve, and graph an inequality to find how many pizzas the band members will have to sell to make a profit?

$75 + 5(x) < 10(x)$

$-5(x) \quad -5(x)$

$\frac{75}{5} < \frac{5(x)}{5}$

$15 < x$


20). Zachary is planning to send a video game to each of his two brothers. If he buys the same game for both brothers and pays $2.50 to ship each game, how much can he spend on each game without spending more than $75? Write, solve, and graph an inequality for this situation.

$2(x + 2.50) \leq 75$

$2x + 5 \leq 75$

$-5 \quad -5$

$\frac{2x}{2} \leq \frac{70}{2}$

$x \leq 35$


Solve the following Inequalities and graph your results. (3 points).

21). $-4 < x - 5 < 9$

$-4 < x - 5$ $\quad\quad$ $x - 5 < 9$

$+5 \quad +5$ $\quad\quad$ $+5 \quad +5$

$1 < x$ $\quad\quad$ $x < 14$


22). $-9 < 3x + 6 \leq 36$

$-9 < 3x + 6$ $\quad\quad$ $3x + 6 \leq 36$

$-6 \quad -6$ $\quad\quad$ $-6 \quad -6$

$\frac{-15}{3} < \frac{3x}{3}$ $\quad\quad$ $\frac{3x}{3} \leq \frac{30}{3}$

$-5 < x$ $\quad\quad$ $x \leq 10$

23). $x - 3 \geq 8$ OR $x - 10 \leq -26$

$x - 3 \geq 8$ $\quad$ $x - 10 \leq -26$

$+3 \quad +3$ $\quad$ $+10 \quad +10$

$x \geq 11$ $\quad$ $x \leq -16$


Graph the following problem. (2 Points).

24). $2x - 1 < 19$ OR $20x \geq 300$

$2x - 1 < 19$ $\quad$ $\frac{20x}{20} \geq \frac{300}{20}$

$+1 \quad +1$

$\frac{2x}{2} < \frac{20}{2}$ $\quad$ $x \geq 15$

$x < 10$


25). The recommended alkalinity level for swimming pool water is between 45 and 49 parts per million, inclusive.

$45 \leq x \leq 49$


Complete the truth table (12 points)

| P | Q | P True or False? | Q True or False? | P **AND** Q True or False? |
|---|---|---|---|---|
| **Red is a color** | **9 is an odd number** | True | True | True |
| **Red is a fruit** | **9 is an odd number** | False | True | False |
| **Red is a color** | **9 is an even number** | True | False | False |
| **Red is a fruit** | **9 is an even number** | False | False | False |

Complete the truth table (12 points)

| P | Q | P True or False? | Q True or False? | P **OR** Q True or False? |
|---|---|---|---|---|
| **Pennsylvania is a state** | **Owls can fly** | True | True | True |
| **Pennsylvania is a country** | **Owls can fly** | False | True | True |
| **Pennsylvania is a country** | **Owls cannot fly** | False | False | False |
| **Pennsylvania is a state** | **Owls cannot fly** | True | False | True |