

Chapter 2 Test Review Sheet

Name: Answer Key

Date: _____

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

1). $-22 + 15y - 7z$

Terms: $-22, 15y, -7z$

Factors: $-22, 15 \& y, -7 \& z$

Coefficients: $15, -7$

2). $54d + 17a - 22b$

Terms: $54d, 17a, -22b$

Factors: $54 \& d, 17 \& a, -22 \& b$

Coefficients: $54, 17, -22$

Interpret the parts of the following expression (2 points)

3). Vandan is buying fruits and vegetables. He buys W apples for \$.65 per apple and Z carrots for \$.10 per carrot. What does the expression $.65w + .10z$ represent?

$.65w \Rightarrow .65$ price per apple / w number of apples
 $.10z \Rightarrow .10$ price per carrot / z number of carrots.

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

4). The price of an item plus 12% sales tax.

$$1x + .12x$$
$$1.12x$$

5). The price of a house plus 20% closing costs.

$$1x + .2x$$
$$1.2x$$

Solve the following expressions. (3 Points)

6). $3x + 20 = 89$

$$-20 \quad -20$$

$$\frac{3x}{3} = \frac{69}{3}$$

$$x = 23$$

7). $\frac{2}{5}x + 10 = 15$

$$-10 \quad -10$$

$$\frac{5}{2} \left(\frac{2}{5}x \right) = 05 \left(\frac{5}{2} \right)$$

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

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

8). One month, Molly worked 5 hours more than Dylan, and max worked 2 times as many hours as Molly. Together they worked 110 hours. Find the number of hours each person worked.

$$\begin{array}{l}
 \text{Molly: } x + 5 = 28.75 \\
 \text{Dylan: } x = 23.75 \\
 \text{max: } 2(x+5) = 57.50
 \end{array}$$

$$\begin{array}{l}
 x + x + 5 + 2(x+5) = 110 \\
 2x + 5 + 2x + 10 = 110 \\
 4x + 15 = 110 \\
 -15 \quad -15 \\
 \hline
 4x = 95 \\
 \frac{4x}{4} = \frac{95}{4} \\
 x = 23.75
 \end{array}$$

9). One moving company charges \$350 plus \$10 per hour. Another moving company charges \$250 plus \$15 per hour. At what number of hours will the charge by both companies be the same? What is the charge?

$$\begin{array}{l}
 \text{company 1: } 350 + 10(x) \\
 \text{company 2: } 250 + 15(x)
 \end{array}$$

$$\begin{array}{l}
 350 + 10x = 250 + 15x \\
 -10x \quad -10x \\
 \hline
 350 = 250 + 5x \\
 -250 \quad -250 \\
 \hline
 100 = 5x \\
 \frac{100}{5} = \frac{5x}{5} \\
 20 = x
 \end{array}$$

20 hrs.
 $350 + 10(20)$
 $350 + 200$
 $\$550$

10). Nick plans to make a down payment plus monthly payments in order to buy a motorcycle. At one dealer she would pay \$2000 down and \$100 each month. At another dealer, she would pay \$3000 down and \$50 each month. After how many months would the total amount paid be the same for both dealers? What would that amount be?

$$\begin{array}{l}
 \text{dealer 1: } 2000 + 100(x) \\
 \text{dealer 2: } 3000 + 50(x)
 \end{array}$$

$$\begin{array}{l}
 2000 + 100(x) = 3000 + 50(x) \\
 -50(x) \quad -50(x) \\
 \hline
 2000 + 50x = 3000 \\
 -2000 \quad -2000 \\
 \hline
 50x = 1000 \\
 x = 20
 \end{array}$$

$x = 20$
 $2000 + 100(20)$
 $2000 + 2000$
 $\$4000$

11. The perimeter of a parallelogram is 120 meters. The width of the parallelogram is 8 meters less than its length. Find the length and the width of the parallelogram.

$$\begin{array}{l}
 w = x - 8 \\
 L = x
 \end{array}$$

$$\begin{array}{l}
 2x + 2(x-8) = 120 \\
 2x + 2x - 16 = 120 \\
 4x - 16 = 120 \\
 +16 \quad +16 \\
 \hline
 4x = 136 \\
 \frac{4x}{4} = \frac{136}{4} \\
 x = 34
 \end{array}$$

$L = 34$
 $w = 26$

12). Kim works 6 hours more each day than Jill does, and Jack works 3 hours less each day than Jill does. Over 2 days, the number of hours Kim works is equal to the difference of 2 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	$x + 6 = 12$	$2(x + 6)$
Jill	$x = 6$	$2x$
Jack	$x - 3 = 3$	$2(x - 3)$

$$\begin{aligned} \text{Kim} &= 2(2(x-3)) - 2x \\ 2(x+6) &= 2(2x-6) - 2x \\ 2x+12 &= 4x-12-2x \\ 2x+12 &= 2x-12 \\ -2x-12 & \quad -2x-12 \\ 4x &= 24 \end{aligned}$$

$$\frac{4x}{4} = \frac{24}{4}$$

$$x = 6$$

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

13). Solve for R.

$$\begin{aligned} 3P + 8R &= Q \\ -3P & \quad -3P \\ \hline 8R &= Q - 3P \\ \frac{8R}{8} &= \frac{Q-3P}{8} \\ R &= \frac{Q-3P}{8} \end{aligned}$$

14). Solve for P.

$$\begin{aligned} \frac{3}{7}(P+2) &= Y \\ \frac{3}{7}P + \frac{6}{7} &= Y \\ -\frac{6}{7} & \quad -\frac{6}{7} \\ \hline \frac{3}{7}P &= Y - \frac{6}{7} \\ \frac{7}{3} \left(\frac{3}{7}P \right) &= \left(Y - \frac{6}{7} \right) \frac{7}{3} \\ P &= \left(Y - \frac{6}{7} \right) \frac{7}{3} \end{aligned}$$

15). Solve for T

$$\begin{aligned} m &= \frac{WTC}{WC} \\ \cancel{W}C & \quad \cancel{W}C \\ \hline \frac{m}{WC} &= T \\ \frac{7}{3} \left(\frac{3}{7}(P+2) \right) &= y \\ P+2 &= \frac{7}{3}y \\ -2 & \quad -2 \\ \hline P &= \frac{7}{3}y - 2 \end{aligned}$$

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 \$300 for a party, how many people can attend?

Solve the Equation for p

$$\begin{aligned} c &= 5p + 215 \\ \frac{c-215}{5} &= \frac{5p}{5} \\ \frac{c-215}{5} &= p \end{aligned}$$

Substitute Values Into New Equation

$$\begin{aligned} \frac{300-215}{5} &= p \\ \frac{85}{5} &= p \\ 17 &= p \end{aligned}$$

Solve and graph the following Inequalities. (3 Points)

17). $5 + 5(x + 4) \leq 20$

$$\begin{aligned} 5 + 5x + 20 &\leq 20 \\ 5x + 25 &\leq 20 \\ -25 \quad -25 & \\ \frac{5x}{5} &\leq \frac{-5}{5} \\ x &\leq -1 \end{aligned}$$

18). $x + 1 > -5(7 - 2x)$

$$\begin{aligned} x + 1 &> -35 + 10x \\ +35 \quad +35 & \\ x + 36 &> 10x \\ -x \quad -x & \\ 36 &> 9x \\ \frac{36}{9} &> \frac{9x}{9} \\ 4 &> x \end{aligned}$$

19). The school band will sell pizzas to raise money for new uniforms. The supplier charges \$100 plus \$4 per pizza. The band members sell the pizzas for \$7 each. Write, solve, and graph an inequality to find how many pizzas the band members will have to sell to make a profit?

$$100 + 4(x) < 7(x)$$

$$\begin{aligned} \frac{100}{3} &< \frac{3(x)}{3} \\ 33\frac{1}{3} &< x \end{aligned}$$

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 \$4.75 to ship each game, how much can he spend on each game without spending more than \$100? Write, solve, and graph an inequality for this situation.

$$\begin{aligned} 2(x + 4.75) &\leq 100 \\ 2x + 9.50 &\leq 100 \\ -9.50 \quad -9.50 & \\ 2x &\leq 90.50 \\ \frac{2x}{2} & \\ x &\leq 45.25 \end{aligned}$$

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

21). $-2 < x - 3 < 5$

$$\begin{aligned} -2 < x - 3 & \quad x - 3 < 5 \\ +3 \quad +3 & \quad +3 \quad +3 \\ 1 < x & \quad x < 8 \end{aligned}$$



22). $-10 < 3x + 2 \leq 8$

$$\begin{aligned} -10 < 3x + 2 & \quad 3x + 2 \leq 8 \\ -2 \quad -2 & \quad -2 \quad -2 \\ -12 < 3x & \quad 3x \leq 6 \\ \frac{-12}{3} < \frac{3x}{3} & \quad \frac{3x}{3} \leq \frac{6}{3} \\ -4 < x & \quad x \leq 2 \end{aligned}$$



23). $x - 5 \geq -2$ OR $x - 5 \leq -6$

$$\begin{array}{l} x - 5 \geq -2 \\ +5 \quad +5 \\ \hline x \geq 3 \end{array} \quad \begin{array}{l} x - 5 \leq -6 \\ +5 \quad +5 \\ \hline x \leq -1 \end{array}$$



24). $4x - 1 < 15$ OR $8x \geq 48$

$$\begin{array}{l} 4x - 1 < 15 \\ +1 \quad +1 \\ \hline 4x < 16 \\ \frac{4x}{4} < \frac{16}{4} \\ x < 4 \end{array} \quad \begin{array}{l} 8x \geq 48 \\ \frac{8x}{8} \geq \frac{48}{8} \\ x \geq 6 \end{array}$$



Graph the following problem. (2 Points).

25). The recommended alkalinity level for swimming pool water is between 80 and 120 parts per million, inclusive.

$$80 \leq x \leq 120$$



Complete the truth table (12 points)

<u>P</u>	<u>Q</u>	<u>P</u> True or False?	<u>Q</u> True or False?	<u>P AND Q</u> True or False?
Blue is a color	7 is a number	True	True	True
Blue is not a color	7 is a positive number	False	True	False
Blue is a color	7 is a negative number	True	False	False
Blue is not a color	7 is not a number	False	False	False

Complete the truth table (12 points)

<u>P</u>	<u>Q</u>	<u>P</u> True or False?	<u>Q</u> True or False?	<u>P OR Q</u> True or False?
Eminem is a country singer	A Cat is a mammal	False	True	True
Eminem is a rapper	A Cat is a mammal	True	True	True
Eminem is a baseball player	A Cat is a bird	False	False	False
Eminem is a football player	A Cat is a bird	False	False	False

