

TERM 2 REVIEW for Final

Name: _____ Period: _____

Show your work and work in pencil. **DUE THE DAY OF TERM FINAL DEC 13TH / DEC 14TH**

THIS IS ALSO DEAD DAY FOR THE TERM. PLEASE TURN IN ALL HOMEWORK BY THIS DAY

1. Write the following equation in slope-intercept form: $3y - (5x + 3) = 2y - x$.

$$\begin{aligned} 3y - 5x - 3 &= 2y - x \\ + 2y + 5x + 3 &= -2y + 5x + 3 \\ \hline y &= 4x + 3 \end{aligned}$$

2. Write the equation of the line given the following points: (6, 5) and (5, 1)

$m = 4/1$ $1 = 4(5) + b$ $y = 4x - 19$

$b = 20 + b$
 $-19 = b$

$$\begin{array}{r|l} x & y \\ \hline 6 & 5 \\ 5 & 1 \end{array} \quad -1 \left\langle \begin{array}{l} 6 \\ 5 \end{array} \right\rangle -4$$

3. Write the equation of the line from the following table.

$m = \frac{8}{4} = 2/1$ $y = 2x + 1$

Check: Using (1, 3)
 $3 = 2(1) + b$
 $3 = 2 + b$ $b = 1$

$y = 2x + 1$

	0	1	
1	x	y	2
4	1	3	8
	5	11	
	-1	-1	

4. Using the graph of the line to the right:

a. Write the equation and graph the line parallel to the given line and goes through the point (-2, -3). Parallel = slope is the same.

$-3 = -\frac{1}{2}(-2) + b$ $y = -\frac{1}{2}x - 4$

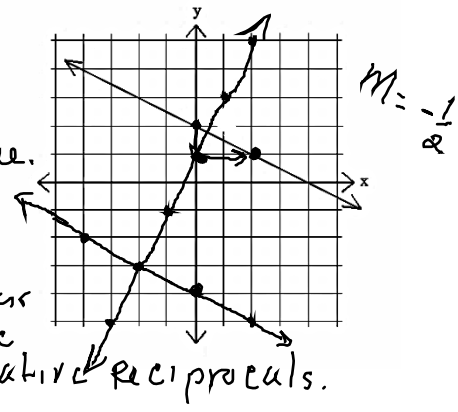
$-3 = 1 + b$ $b = -4$

b. Write the equation and graph the line perpendicular to the given line and goes through the point (-2, -3). Perpendicular = slopes are negative reciprocals.

$m = \frac{3}{1}$

$-3 = 2(-2) + b$ $y = 2x + 1$

$-3 = -4 + b$ $b = 1$



5. Solve for k in the following equation. $5k + 3(k - 1) = 10(k + 2) - 3$

Check:

$$\begin{aligned} 5(-10) + 3(-10 - 1) &= 10(-10 + 2) - 3 \\ -50 + 3(-11) &= 10(-8) - 3 \\ -50 - 33 &= -80 - 3 \\ -83 &= -83 \end{aligned}$$

$$\begin{aligned} 5k + 3k - 3 &= 10k + 20 - 3 \\ 8k - 3 &= 10k + 17 \\ -2k &= 20 \\ k &= -10 \end{aligned}$$

6. Brad wants to get in shape. He starts by running 5 miles a week. He then adds 2 more miles each additional week he runs. Write an equation to determine how far Brad will run on any given week.

$y = 5 + 2w$

a. How far will Brad run on week 16?

$y = 5 + 2(16) = 5 + 32 = 37$ miles on week 16

7. From the following equation state the following: $14 = 2y + 8x$.

a. What is the slope? $m = -4/1$

b. What is the y-intercept? (0, 7)

What is the x-intercept? (7/4, 0)

To find x-int:

$$\begin{aligned} -4x &= 0 \\ -4x &= -14 \\ x &= \frac{14}{4} \end{aligned}$$

8. Solve the following for x: $12 + 3x - 21y = -6x - 9$

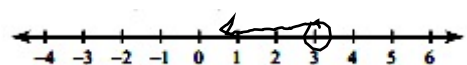
$$\begin{aligned} 12 + 3x - 21y &= -6x - 9 \\ + 6x + 9 - 3x &= -3x - 9 \\ \hline 21 - 21y &= -9x \end{aligned}$$

$$\begin{aligned} \frac{21}{-9} + \frac{21y}{9} &= x \\ -\frac{7}{3} + 2y &= x \end{aligned}$$

(When you multiply or divide an inequality by a negative number, you MUST flip the sign.)

9. Solve and graph the following inequality.

$$\begin{aligned} 3 - 6(4x + 6) &> -105 \\ 3 - 24x - 36 &> -105 \\ -24x - 33 &> -105 \\ -24x &> -72 \\ x &< 3 \end{aligned}$$



Inequality Operator

10. Solve the following for x: $-4y + 2x \geq 4x + 3y - 7$

$$\begin{array}{r} +4y - 4x \\ -4x + 4y \\ \hline -2x \geq 7y - 7 \\ x \leq \frac{7}{2}y + \frac{7}{2} \end{array}$$

11. Translate the following: The sum of a number and six is the same as eight times the number, decreased by three. Write an equation and solve for the number.

$$\begin{array}{r} n+6 = 8n-3 \\ -4n-6 = -8n-6 \\ \hline -7n = -9 \\ n = \frac{9}{7} \end{array}$$

Check: $\frac{9}{7} + 6 = 8(\frac{9}{7}) - 3$
 $\frac{9}{7} + \frac{42}{7} = \frac{72}{7} - \frac{21}{7}$
 $\frac{51}{7} = \frac{51}{7}$

12. Solve the following system of equations by graphing. Circle the solution.

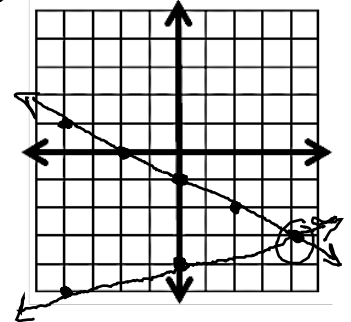
Check: $y = -\frac{1}{2}x - 1$ AND $y + 4 = \frac{1}{4}x$

$$-\frac{1}{2}x - 1 = \frac{1}{4}x - 4$$

$$-\frac{3}{4}x = -3 \quad x = 4$$

$$y = -\frac{1}{2}(4) - 1 = -2 - 1 = -3 \quad (4, -3)$$

(4, -3)



13. How many solutions does the following system have and explain how you know.

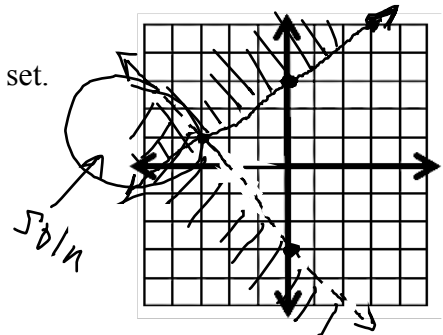
$$\begin{cases} -2x = 12 + 6y \\ 4x + 12y + 24 = 0 \end{cases} \rightarrow \begin{array}{r} -2x - 12 = 6y \\ \hline \frac{-2x}{6} - \frac{12}{6} = \frac{6y}{6} \\ -\frac{1}{3}x - 2 = y \end{array}$$

Some slope of $y = -\frac{1}{3}x - 2$
 - infinite solutions -

14. Graph the system of inequalities. Circle or highlight the solution set.

$y \geq \frac{2}{3}x + 3$ AND $y < -\frac{4}{3}x - 3$

(0,0) test: $0 \geq 3$ FALSE
 $0 < -3$ FALSE



15. Solve the following system of equations using any method (substitution or elimination).

$$\begin{cases} x = 1 - 3y \\ x = -y + 5 \end{cases} \rightarrow \begin{array}{r} 1 - 3y = -y + 5 \\ -1 + y = +y - 1 \\ \hline -2y = 4 \\ y = -2 \end{array}$$

$$x = 1 - 3(-2) = 1 + 6 = 7$$

(7, -2)

Check: $7 = 1 - 3(-2)$
 $7 = 7$ ✓
 $7 = -(-2) + 5$
 $7 = 7$ ✓

a. Which method did you use and why?

Setting equal works good because both eqns are set equal to x.

16. Solve the following system using any method.

Check: $10 - (-1) = 11$ ✓

$2(10) + (-1) = 19$ ✓

$$\begin{cases} x - y = 11 \\ 2x + y = 19 \end{cases} \rightarrow \begin{array}{r} x - y = 11 \\ + 2x + y = 19 \\ \hline 3x = 30 \\ x = 10 \end{array}$$

$$10 - y = 11$$

$$-y = 1$$

$$y = -1$$

(10, -1)

17. While Mrs. Packer was on Space Mountain in Disneyland she sees blue and green aliens. She was able to count a total of 25 aliens. The blue aliens have two eyes and the green ones had four eyes. There was a total of 70 eyes altogether.

- a. Define your variables. $b = \# \text{ of blue aliens}, g = \# \text{ of green aliens}$
 b. Write two equations and solve.
 $b + g = 25$
 $2b + 4g = 70$
 $b = 25 - g$
 $2(25 - g) + 4g = 70 \rightarrow 25 - g + 2g = 35$
 $25 + g = 35$
 $g = 10$
 $b = 25 - 10$
 $b = 15$
- c. Explain your solution.
 There are 15 blue aliens & 10 green aliens.

18. VHMS is going to sell tickets to their band performance. On the first day of the ticket sales the school sold 3 senior citizen tickets and 1 child ticket for a total of \$38. The school took in \$52 on the second day by selling 3 senior citizen tickets and 2 child tickets.

- a. Define your variables. $S = \text{Cost of Senior tickets}, C = \text{Cost of Child tickets}$
 b. Write two equations and solve.
 $3S + 1C = 38$
 $3S + 2C = 52$
 $3S + C = 38$
 $3S + 2C = 52$
 $-C = -14$
 $C = 14$
 $3S + 14 = 38$
 $3S = 24$
 $S = 8$

c. Explain your solution.
 Senior tickets cost \$8, Child tickets cost \$14.

19. Simplify the following. EXACT answers (No decimals).

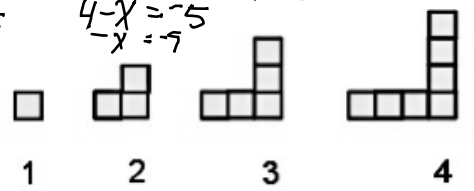
a. $\sqrt{250}$
 $\sqrt{25 \cdot 10} = 5\sqrt{10}$

b. $\sqrt{88}$
 $\sqrt{4 \cdot 22} = 2\sqrt{22}$

c. $\sqrt{200}$
 $\sqrt{100 \cdot 2} = 10\sqrt{2}$

20. Solve for x: a. $|2x + 3| = 13$
 $2x + 3 = 13$
 $2x = 10$
 $x = 5$
 $2x + 3 = -13$
 $2x = -16$
 $x = -8$
 $x = 5 \text{ OR } x = -8$

b. $\frac{2|4 - x|}{2} = \frac{10}{2}$
 $|4 - x| = 5$
 $4 - x = 5$
 $-x = 1$
 $x = -1$
 $4 - x = -5$
 $-x = -9$
 $x = 9$
 $x = 9 \text{ OR } -1$



21. Write an equation to represent the picture's growth.

x	PATTERN	y	s.h
1	1	3	$1 + 2(1 - 1)$
2	1 + 2	5	$1 + 2(2 - 1)$
3	1 + 2 + 2	7	$1 + 2(3 - 1)$
4	1 + 2 + 2 + 2		$1 + 2(4 - 1)$

Stage x :
 $y = 1 + 2(x - 1)$
 $y = 1 + 2x - 2$
 $y = 2x - 1$

22. Give the following information based on the graph to the right.

- a. What is the Domain? $[-6, 8]$ Range? $[-7, 4]$
 b. Is the graph a function? Yes Why? VLT Pass
 c. Is the graph continuous or discrete? Continuous
 d. What's the Max Point? $(-2, 4)$ Min Point? $(5, -7)$
 e. List the interval that the graph is decreasing $(-2, 5)$
 f. If there were arrow at each end, what would be the Domain? $(-\infty, \infty)$ Range? $(-\infty, \infty)$

