Summer Review Packet for students entering Algebra I

Packet is due on the first day of school.

In May students will take the Algebra I Keystone Test. Preparation for this test begins this summer. It is NOT recommended to complete this packet immediately following school dismissal in June nor the night before the packet is due. Student learning is most effective if packet is completed during the months of July and August. Students will be tested on the material in this packet within the first few weeks of school once the teacher has discussed the packet in the classroom. Please show work as needed. Calculator is permitted.

June 2018

1. Write the expression in exponential form

a) 4 squared   b) 5 cubed   c) x to the fifth

2. Evaluate the variable expression when $a = 3$.

a) $2a^2$ b) $(2a)^2$

3. Evaluate the expression using order of operations.

a) $7 + 12 \cdot 3$ b) $(7 + 8) \div 5$ c) $4 + 10 \div 2$

d) $3^3 - 6 \cdot 3$ e) $9 - 3 + (3 + 4)$

4) Use the table below.   5) Is the relation below a function?

                                                                   Explain your reasoning.

x	y
0	0
1	2
2	4
3	6
4	8

a) What is the domain?

b) What is the range?

x	y
5	1
5	3
6	5
7	8
10	12

6. Make in input-output table for the linear equation $y = 6x + 5$.

Use the values $-2, 0, 1, 4, 5$ for *x*.

7. Evaluate the expression.

a) $|10| =$ b) $|-7| =$ c) $-|2.5| =$

8. Solve the equation.

a) $|x| = 9$ b) $|x| = \frac{1}{2}$ c) $|x| = -4$

9. Perform the given operation.

a) $7 + 3$ b) $-6 + 4$ c) $-8 - 10$ d) $6 \cdot 5$

e) $-3 \cdot 4$ f) $-8 \cdot -9$ g) $(-2)(-3)(4)(5)$

10. Use the distributive property to rewrite the expression without parenthesis.

a) $-3(x + 2)$ b) $5(2x + 9)$ c) $-4(-4x - 12)$

11. Solve.

a) $x + 10 = 19$ b) $x - 3 = 17$ c) $-3x = 6$ d) $5x = 20$

e) $-13x = -26$ f) $-6 = \frac{2}{7}m$ g) $\frac{y}{7} = -11$

h) $2x - 9x + 17 = -4$ i) $\frac{2}{3}(x + 3) = 10$ j) $12 = \frac{3}{10}(x + 2)$

Solve. #12 & 13

12. $a)\ 4 + 6x - 9x = 3x$ b) $5x - 3x + 4 = 3x + 8$

13. a) $-5(3x + 2) + 9x = 6(4x - 5)$ b) $\frac{1}{3}(21x + 18) = 23 - 2(x - 5)$

14. Solve. Round to the nearest tenth.

$3.25n - 4.72 = .52n$

15. a) Plot and label the given points.

    b) Name the quadrant or axis each point is on.
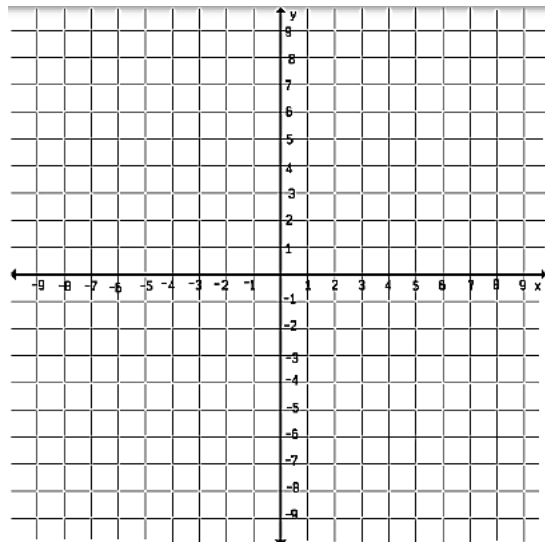
                Quadrant/Axis:
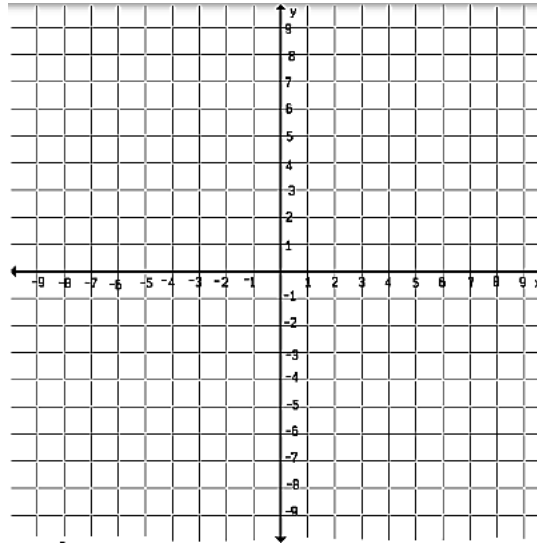
A $(2, 3)$

B $(-4, 2)$

C $(1, -5)$

D $(2, 0)$

E $(-1, -3)$

F $(0, 7)$

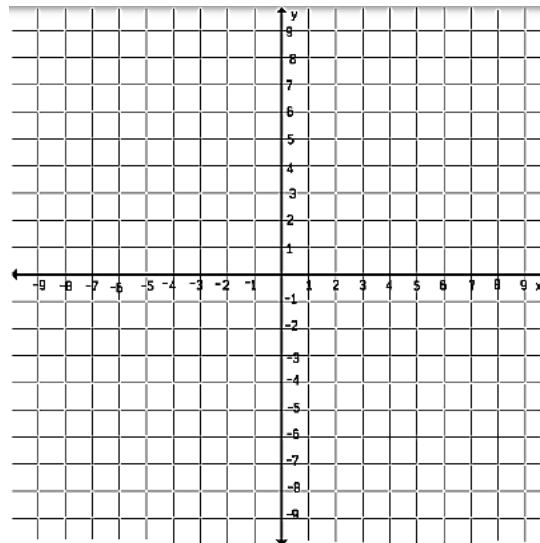16. Graph the linear equation $y = 3x - 2$ given the following table.

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

17. Graph the linear equations. Label each line.
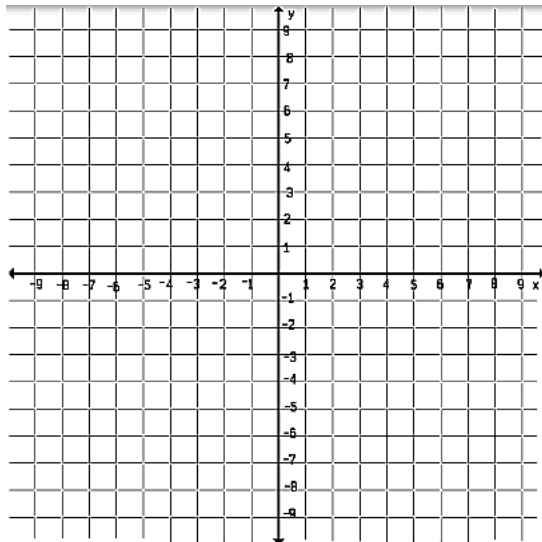
$x = 2$

$y = -4$

Writing Linear Equations

point-slope form $y - y_1 = m(x - x_{1})$ slope formula $m = \frac{y_2 - y_1}{x_2 - x_1}$ slope $= \frac{rise}{run}$

slope-intercept form $y = mx + b$ standard form $Ax + By = C$

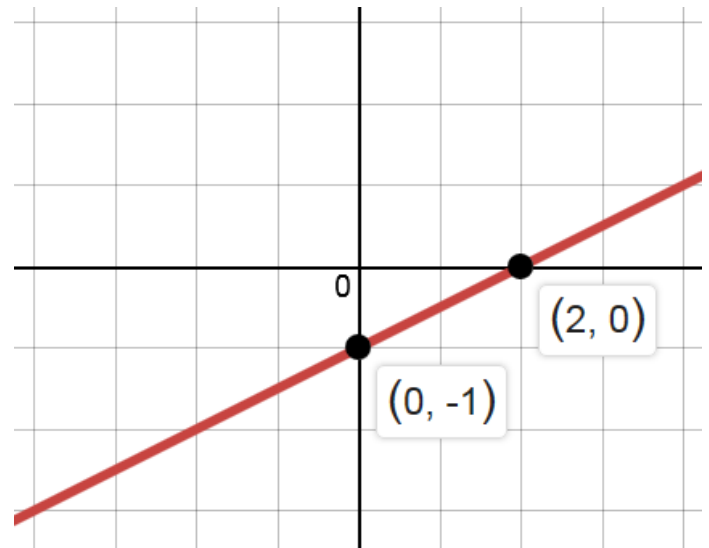18. Find the slope of the line that passes through the points (3,5) and (1,4).

19. Given the linear equation $y = 2x - 3$

a) What is the slope?

b) What is the y-intercept?

c) Graph the line using slope-intercept form.

20. Given the graph below:

a) What is the slope?

b) What is the y-intercept?

c) Write the equation of the line.

(2, 0)

(0, -1)

21. Write in point-slope form the equation of the line that passes through the point $(5, -2)$ with the slope of 3. Then write the equation in slope-intercept form.

a) point-slope form   b) slope-intercept form

22. Write in point-slope form the equation of the line that passes through the point $(-1, 2)$ with the slope of $\frac{-4}{3}$. Then write the equation in slope-intercept form.

a) point-slope form   b) slope-intercept form

23. Write in point-slope form the equation of the line that passes through the points $(2, 3)$ and $(4, 7)$. Then write the equation in slope-intercept form.

a) slope   b) point-slope form   c) slope-intercept form

24. Write in point-slope form the equation of the line that passes through the points $(-4, 5)$ and $(2,2)$. Then write the equation in slope-intercept form.

a) slope   b) point-slope form   c) slope-intercept form

25. Write the given equations in standard form.

a) $3x + 12 = -7y$ b) $\frac{2}{3}x = y - 12$

26. Simplify the expression.

a) $x^3 \cdot x^5 =$ b) $(x^3)^5 =$ c) $n \cdot n^3 \cdot n^4 =$ d) $(3x^4)^2 \cdot x^3$

27. Simplify the expression. Rewrite with positive exponents.

a) $2^{-3} =$ b) $x^4 \cdot x^{-4} =$ c) $\dfrac{m^{-3}}{m^{-4}} =$ d) $3x^{-5}y^{-4} =$ e) $(4y)^{-3} =$
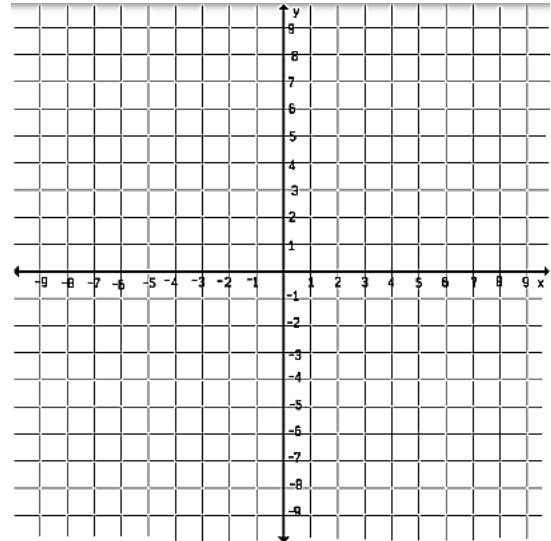
28. Solve the linear system by the graphing and the substitution method.

$y = x + 1$ $\qquad$ $x + y = 3$

a) substitution: $\qquad\qquad$ b) graphing:

29. Solve the linear system by the graphing method and the substitution method.

$2x + y = -10$ $\qquad\qquad$ $3x - y = 0$

a) substitution: $\qquad\qquad$ b) graphing: