Algebra 1

3.1 Standard Form Equations of Lines

Name:_____

Write your questions and thoughts here!

Notes

Recall:

From Math 8: This relationship can be represented as a _____.

One variable usually means _____ solution.

Two variables usually mean _____ than one solution.

Example 1:

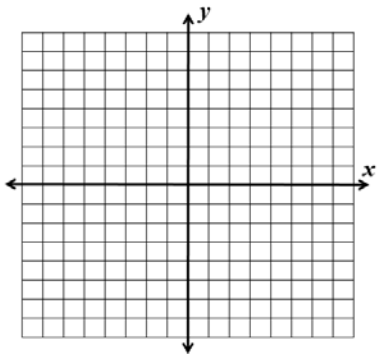
a. Circle all the ordered pairs (x, y) that are solutions to the equation

$(1, 2)$ $(0, 0)$ $(-1, -8)$ $(2, 1)$ $(3, 12)$

b. What is one more ordered pair that is a solution to the equation but is not listed above?

c. How many ordered pairs (x, y) will be in the solution set of the equation

d. Create a visual representation of your solutions by plotting each point (x, y) in the coordinate plane. (Some of your points may not fit on the grid.)

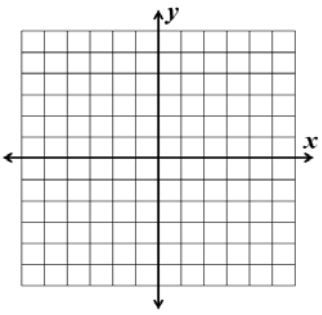


e. What is the visual representation of ALL solutions (from part *d*)? Why does this make sense?

Recall:

Slope-intercept form

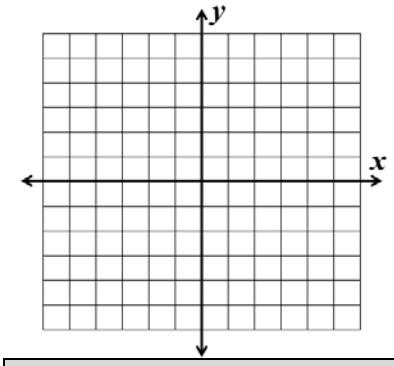
$$y = mx + b$$



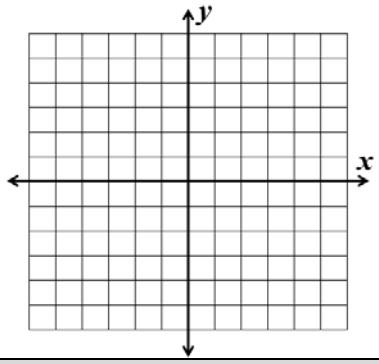
Write your questions and thoughts here!

Graphing Standard Form. Solve for y, then graph.

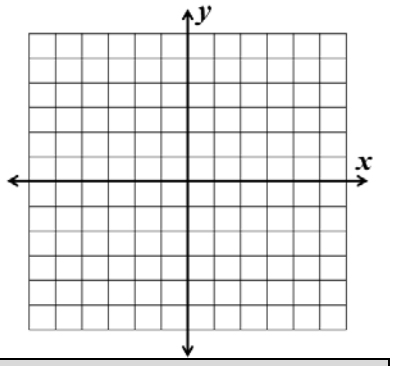
2. $4x + y = 5$



3. $3x + 2y = 4$

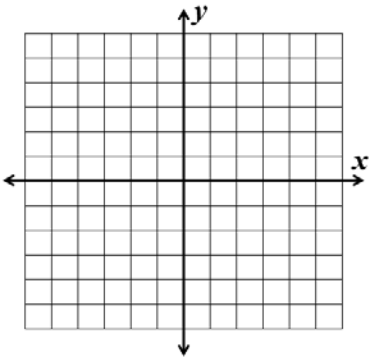


4. $2x - 4y = 8$

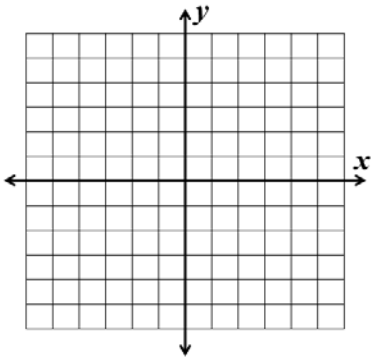


Graphing Standard Form. Find the x- and y-intercepts, then graph.

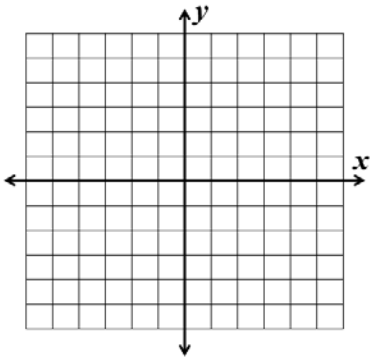
5. $2x + 3y = 6$



6. $6x - 4y = 24$



7. $4x + y = 5$



Now summarize what you learned!

3.1 Standard Form Equations of Lines

Practice

Algebra 1 Name: _____

Circle all the ordered pairs (x, y) that are solutions to the given equation.

1. $3x + 5y = 10$

$(10, 4)$ $(2, 0)$ $(5, -1)$ $(1, 1)$ $(0, 2)$

2. $x - 2y = 4$

$(0, -1)$ $(6, 1)$ $(1,8)$ $(-4, -4)$ $(3, 12)$

3. $7y - 2x = -1$

$(11, 3)$ $(0, 1)$ $(1, -8)$ $(-5, 1)$ $(4, 1)$

4. $10x + 2y = -2$

$(-1, 5)$ $(2, -11)$ $(-3,10)$ $(4, 10)$ $(-5, 10)$

5. $3x + y = 3$

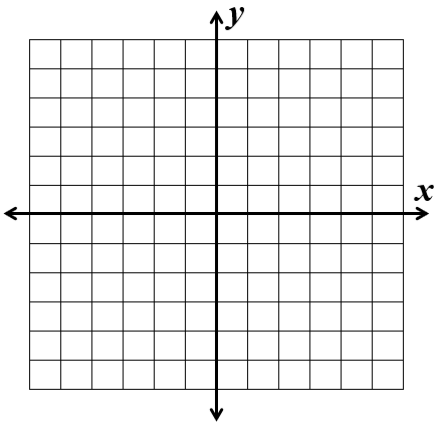
$(-2, 9)$ $(-1, 5)$ $(0, -3)$ $(1, 1)$ $(2, -2)$

6. $2y - 8x = 10$

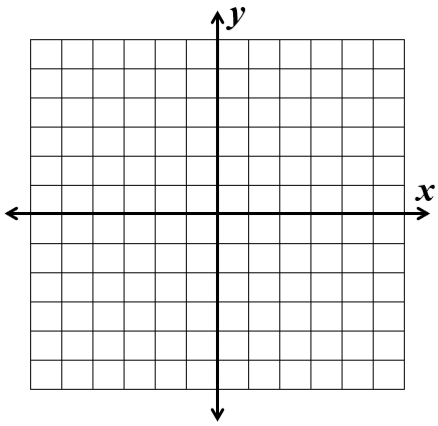
$(-2, -3)$ $(-1, 2)$ $(0, 10)$ $(1, 8)$ $(2, 13)$

Graphing Standard Form. Solve for *y*, then graph.

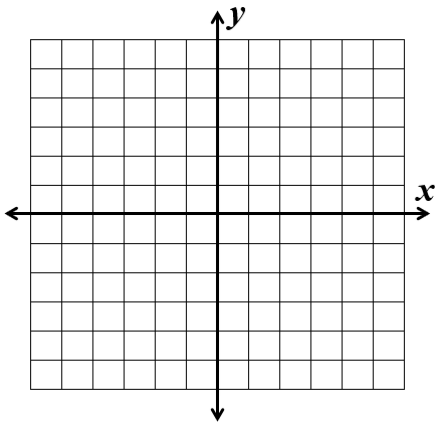
7. $2x + y = 3$



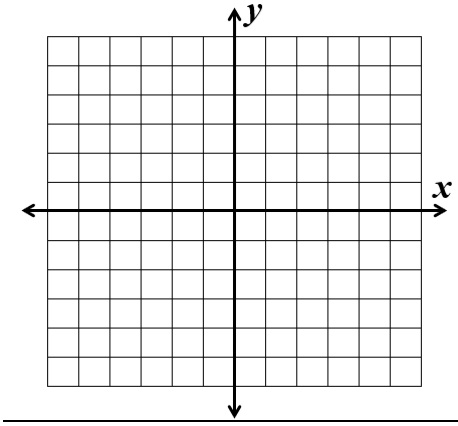
8. $x - y = -5$



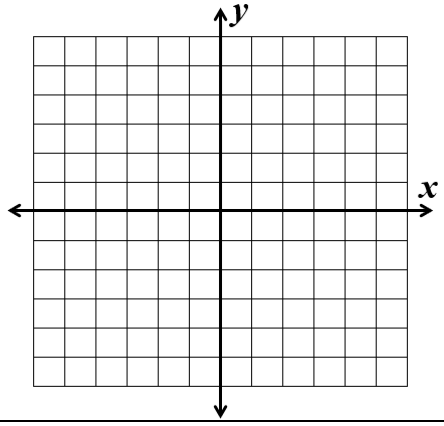
9. $x + y = 6$



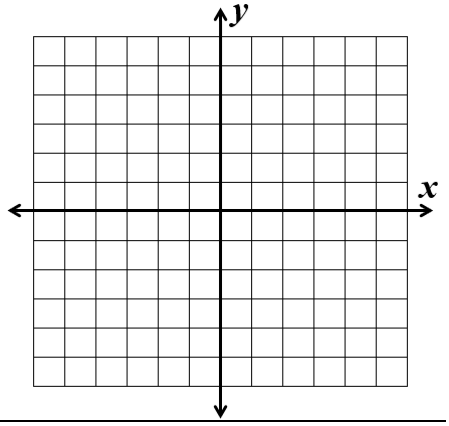
10. $3x - y = 5$



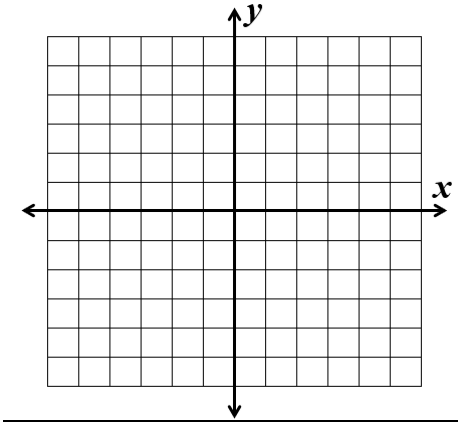
11. $y = -3$



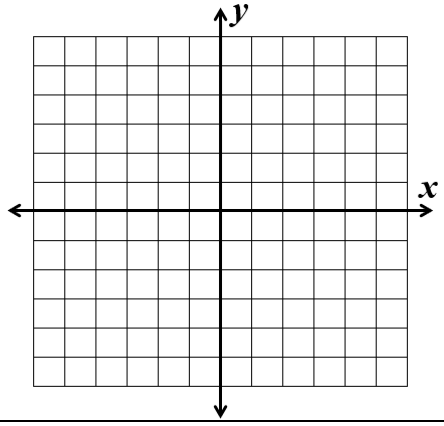
12. $x - 2y = -8$



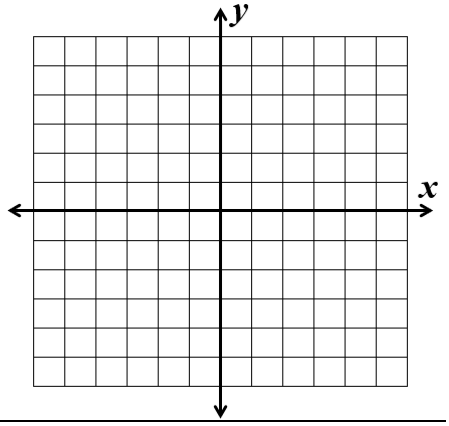
13. $y - x = 0$



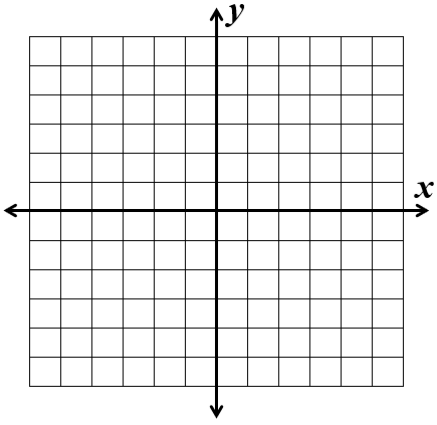
14. $4y - 3x = 16$



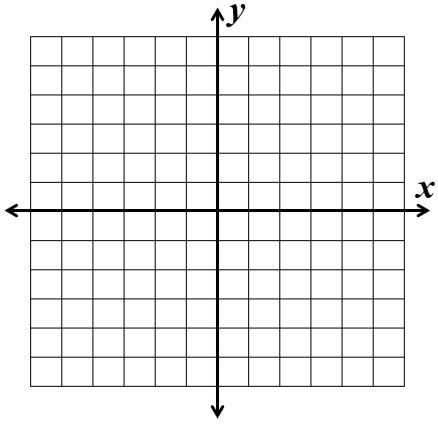
15. $x = 2$



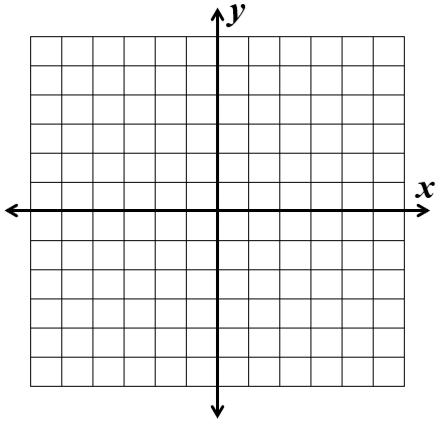
16. $y - 3x = 1$



17. $x - 5y = 10$



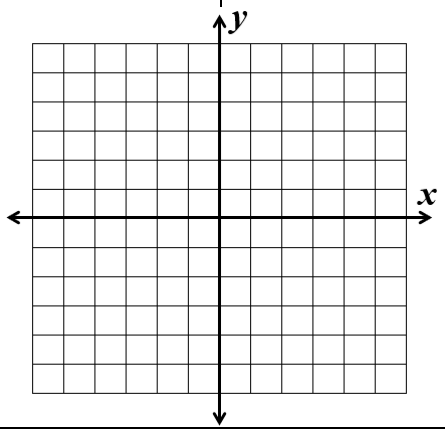
18. $2x + 3y = 0$



Graphing Standard Form. Find the x- and y-intercepts, then graph.

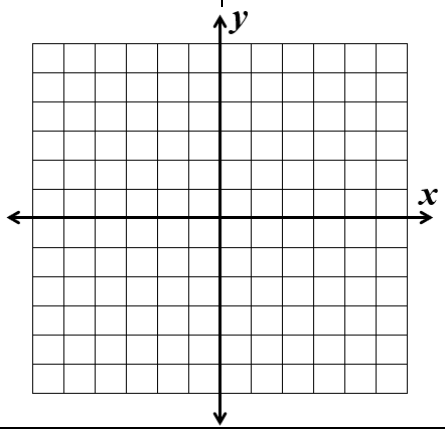
19. $3x + 2y = 6$

x-intercept y-intercept



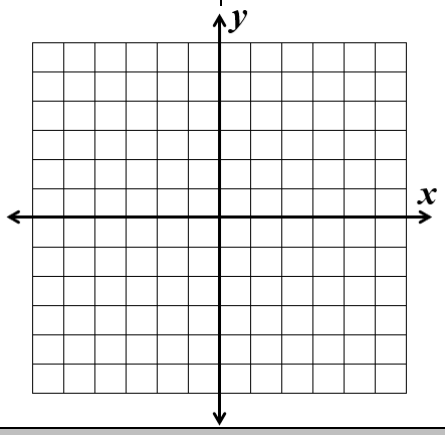
20. $2x - y = 4$

x-intercept y-intercept



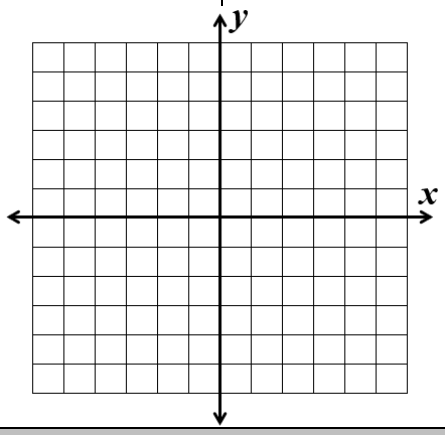
21. $x + 2y = 6$

x-intercept y-intercept



22. $y - 4x = 4$

x-intercept y-intercept



Determine what value(s) for the given variable will make the following equations true. (use mental math)

23. $(x-3)^2 = 25$

24. $\frac{x+2}{x^2+1} = \frac{6}{17}$

25. $g^2 - 5 = -1$

Solve each equation. Put your solution in set notation.

26. $-5x - 8(2x - 8) = -104.$

27. $-4 + \frac{n+4}{5} = -6$

3.1 Standard Form Equations of Lines

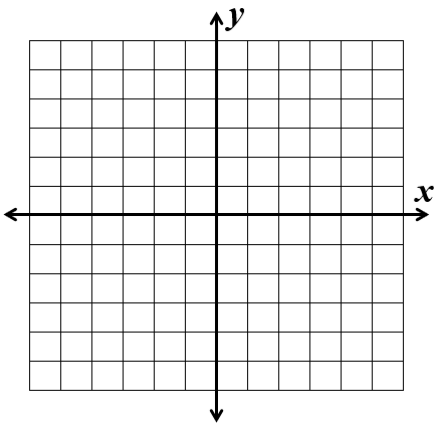
Wrap up

Practice check: The next two questions are just like the practice, but we provide no answers. If you can't do these problems, then you're definitely not ready for a Mastery Check!

28. $7x - 2y = -3$

$(1, 5)$ $(0, -1)$ $(-1, -2)$ $(-4, 0)$ $(2, 8)$

29. Graph $3x - 2y = 8$

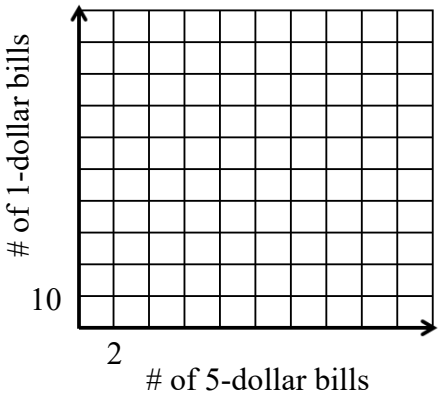


The Algebros are raising money for charity by having a "Punniest of the Year" competition between Mr. Brust and Mr. Kelly. Students must pay to see the two compete in wit and jokes. After the competition, Mr. Sullivan counts $68.00, with a combination of five-dollar and one-dollar bills in the cash box. Possible combinations of bills are listed in the table below. Complete the table.

# of 5-dollar bills	# of 1-dollar bills	Total = $68.00
12	8	$5(12) + 1(8) = 68$
7	33	
4	48	
1	63	

(a) Draw one more row on the bottom of the table and write in one more combination of fives and ones that totals $68.

(b) The equation $5x + 1y = 68$ represents this situation. Using the numbers from the table, sketch a graph on the grid to the right. Pay attention to the scale.



(c) Describe what each number or variable represents from this scenario.

x represents…

y represents…

1 represents…

5 represents…

68 represents...