



**Mastery
Worksheets**

MAT 1033

Test 1

- Graph Linear Equations in Two Variables: Standard Form
- Graph Linear Equations in Two Variables: *Slope-Intercept Form*
- Writing Equations of a Line: *Point-Slope Form of a Line*



Mastery Worksheet

MAT 1033



MY NAME IS:

Graphing Linear Equations in Two Variables: *Standard Form*

Test 1
Worksheet 1

Practice Session #

Date:

/ /

Standard Form:

A **linear equation in two variables** is any equation that can be written in the form $Ax + By = C$ where A , B and C are real numbers and A and B are not both zero. The form is called *standard form*.

Let's get to work...

Determine if each point (x, y) is a solution to the linear equation by substituting the values of x and y into the equation.

If the ordered pair makes the equation a **TRUE** statement, then the point **IS** a solution to the equation.

If the ordered pair makes the equation a **FALSE** statement, then the point **IS NOT** a solution to the equation.

1

$$2x + 5y = 9$$

a. $(2, 1)$

b. $\left(-\frac{1}{2}, 2\right)$

2

$$y = \frac{3}{2}x + 1$$

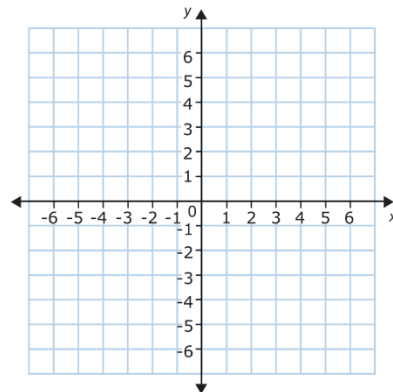
a. $(2, 4)$

b. $(4, 1)$

Graph the linear equation by creating a table of values.

3

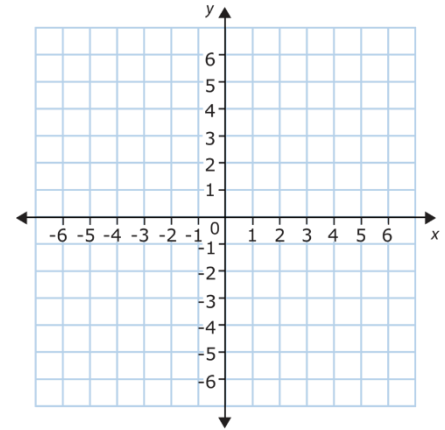
$$y = 2x + 1$$



Test 1 | Graphing Linear Equations in Two Variable: Worksheet 1 | *Standard Form*

4

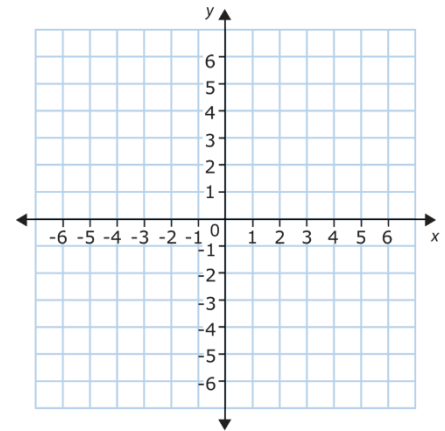
$$y = 4x + 3$$



5

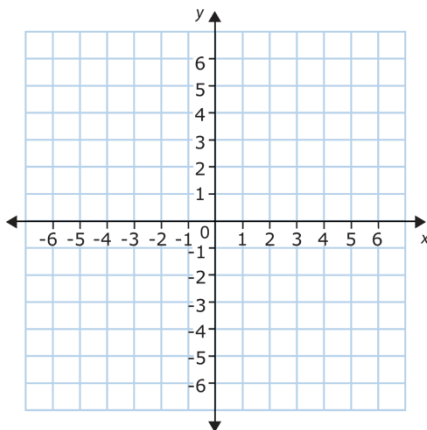
$$y = -\frac{3}{2}x - 2$$

Hint : pick values for x that will cancel the denominator.



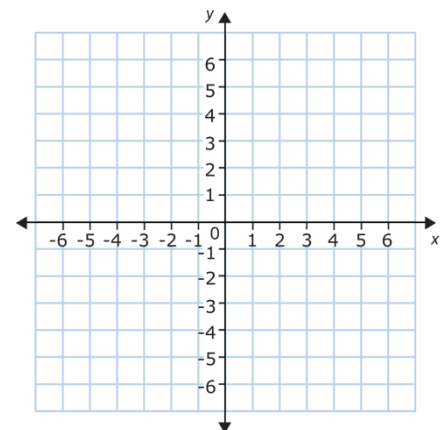
6

$$y = 5$$



7

$$2x = -8$$



How do I feel?

Awesome!
I Aced it!

 **Easy**

 **Medium**

 **Hard**

I need help with...

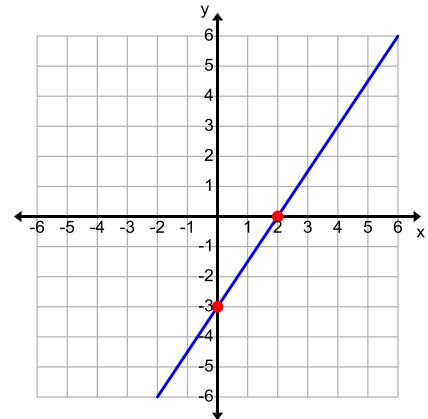
Test 1 | Graphing Linear Equations in Two Variable: Worksheet 1 | *Standard Form*

An **x-intercept** is a point where the graph intersects the x-axis.

A **y-intercept** is a point where the graph intersects the y-axis.

The x-intercept of the line is (2, 0).

The y-intercept of the line is (0, -3).



Given an equation of a line,

To [find the x-intercept](#), substitute $y = 0$. To [find the y-intercept](#), substitute $x = 0$.

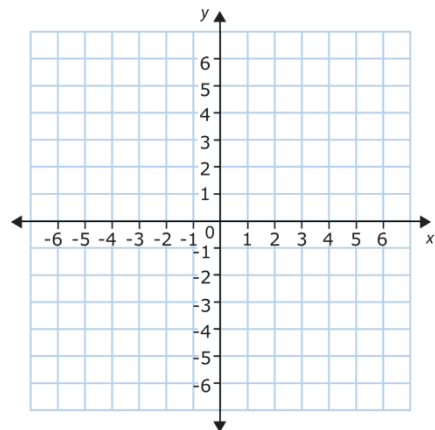
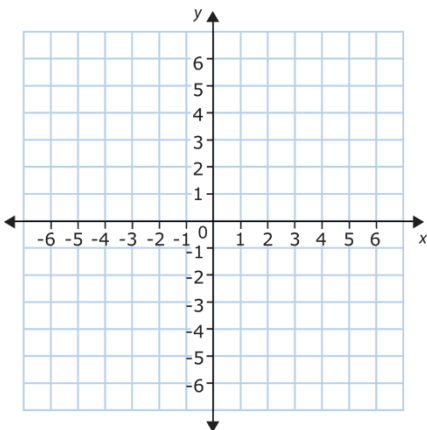
Find the x - and y -intercepts of the line and use those to graph the line.

8

$$3x - 2y = 6$$

9

$$4x + 3y = 8$$



How do I feel?

Awesome!
I Aced it!

Easy

Medium

Hard

I need help with...



Mastery Worksheet

MAT 1033



MY NAME IS:

Graphing Linear Equations in Two Variables: *Slope-Intercept Form*

Test 1
Worksheet 2

Practice Session #

Date:

/ /

Slope-Intercept Form:

A linear equation written in the form $y = mx + b$ is in **slope-intercept form**.

m is the slope of the line, the point $(0, b)$ is the y -intercept of the line

Let's get to work...

Find the slope and y -intercept of the linear equation.

1

$$y = \frac{2}{3}x + 5$$

2

$$8x + 12y = 9$$

3

$$4y + 16 = 0$$

Slope of a Line:

Given two points (x_1, y_1) and (x_2, y_2) then the slope is $m = \frac{y_2 - y_1}{x_2 - x_1}$

Determine the slope of the line passing through the points.

4

$(3, -4)$ and $(-5, 2)$

5

$(3, 2)$ and $(-3, 2)$

6

$(3, -4)$ and $(3, 2)$

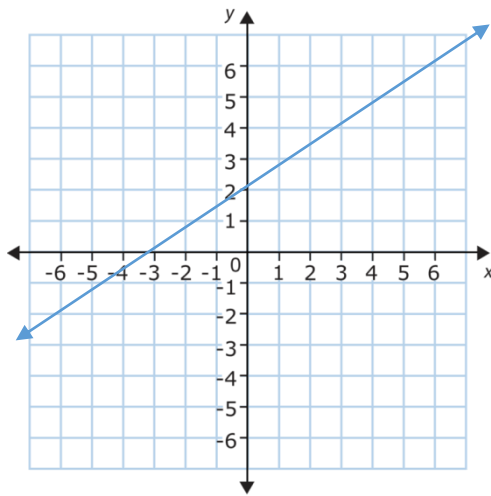
Note: Vertical lines have an undefined slope.
Horizontal lines have a slope of 0.

Test 1 | Graphing Linear Equations in Two Variables: Worksheet 2 | *Slope-Intercept Form*

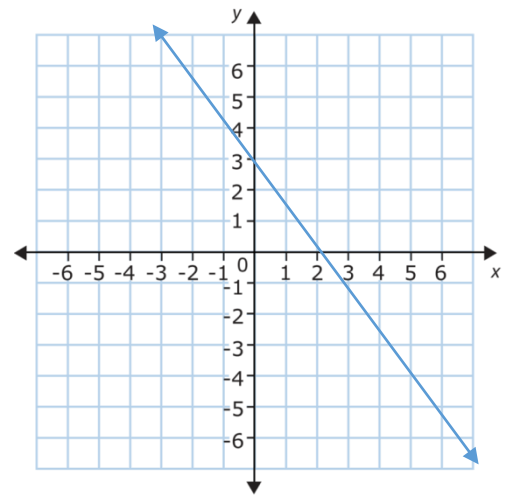
To find the slope of a line from a graph: $m = \frac{\text{rise}}{\text{run}} = \frac{\text{change in } y}{\text{change in } x} = \frac{y_2 - y_1}{x_2 - x_1}$

Determine the slope and y -intercept from the graph.

7



8



Note: Lines that rise from left to right have a positive slope.
Lines that fall from left to right have a negative slope.

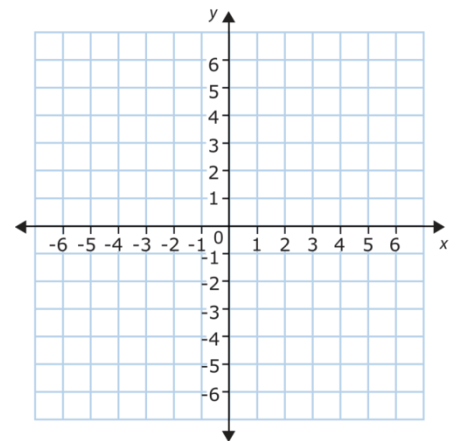
To graph a linear equation when written in slope intercept form $y = mx + b$, remember:

$m = \frac{\text{rise}}{\text{run}}$ the y -intercept is where the graph crosses the y axis

Graph using the slope and y intercept.

9

$$y = -3x - 2$$



How do I feel?

Awesome!
I Aced it!

Easy

Medium

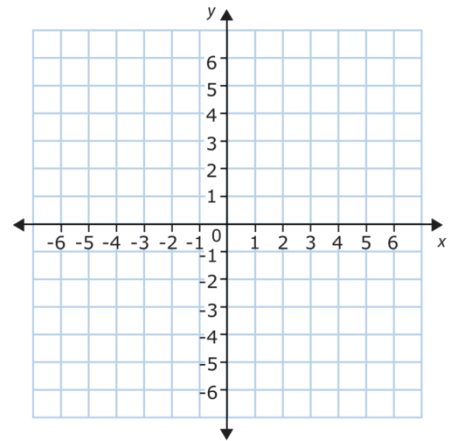
Hard

I need help with...

Test 1 | Graphing Linear Equations in Two Variables:
Worksheet 2 | *Slope-Intercept Form*

10

$$y = -\frac{3}{4}x + 4$$



How do I feel?

Awesome!
I Aced it!


Easy


Medium


Hard

I need help with...



Mastery Worksheet

MAT 1033



MY NAME IS:

Writing Equations of a Line: *Point-Slope Form of a Line*

Test 1
Worksheet 3

Practice Session #

Date:

/ /

Point-Slope Form of a Line:

The equation of a line passing through the point (x_1, y_1) with a slope of m is $y - y_1 = m(x - x_1)$

Let's get to work...

To find an equation of a line when the slope and a point is known, use the point slope form of a line.

To write your answer in slope intercept form $y = mx + b$, solve for y .

To write your answer in standard form $Ax + By = C$, clear fractions and write the variables on one side of the equation.

1

Find the equation of the line that passes through the point $(2, -3)$ and has a slope of 4.
Write your answer in slope intercept form.

2

Find the equation of the line that passes through the point $(-1, 0)$ and has a slope of $\frac{2}{3}$.
Write your answer in standard form.

Test 1 | Writing Equations of a Line: Worksheet 3 | *Point-Slope Form of a Line*

To find the equation of a line given two points, (x_1, y_1) and (x_2, y_2) :

find the slope $m = \frac{y_2 - y_1}{x_2 - x_1}$

use the point slope form of a line

$$y - y_1 = m(x - x_1)$$

Find the equation of the line that passes through the points. Write your answer in slope intercept form.

3 $(2,3)$ and $(4,5)$

4 $(-1,3)$ and $(3,-5)$

5 $(2,3)$ and $(2,5)$

6 $(2,3)$ and $(4,3)$

Parallel lines have the **same slope**.
Perpendicular lines have **negative-reciprocal slope**.

Find the equation of the line with the given conditions. Write your answer in slope intercept form.

7 Passes through the point $(-2, 1)$ and is parallel to the line $y = 3x - 5$.

8 Passes through the point $(-2, 1)$ and is perpendicular to the line $y = 3x - 5$.

How do I feel?

Awesome!
I Aced it!


Easy


Medium


Hard

I need help with...