

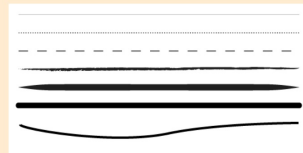
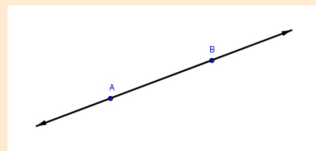
Assignment Self-Monitoring Sheet

Welcome 9th Grade!	Assignment Effort Grade (Circle One)	Comments (What was interesting or challenging?)
Monday Date: <u>9/11</u> Topic: _____	0 1 2	I read more about Dr. Okikiolu
Tuesday Date: <u>9/12</u> Topic: <u>Gradient Practice</u>	0 1 2	Solving for missing coordinates was a challenge!
Wednesday Date: _____ Topic: _____	0 1 2	
Thursday Date: _____ Topic: _____	0 1 2	
Friday Date: _____ Topic: _____	0 1 2	



Warm-Up

Write a definition for the term "*line*".



Done?:

- How many points are in a line...?
- How thick is a line...?

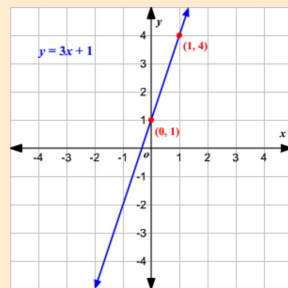
Class Plan:

1. Warm-up
2. What are the different forms of linear equations?
3. How is each form useful?
4. Joke Break
5. Classify equations
6. Apply forms to real-life
....defend your type of form.
7. Translate between forms.

E

THE EQUATION OF A LINE

Definition: A rule which connects the **x** and **y-coordinates** of **all** points on the line.



The equation of a line defines all *coordinate pairs* (points) on the line.

The equation also gives us a quick way to check if a specific point is on the line.

There are multiple forms of writing the equation of a line.

Record FORMS and BENEFITS in class notebook

Two our book uses:

- Gradient-Intercept Form (Slope-Intercept)

$$y = mx + c$$

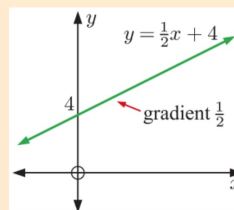
- Standard Form

$$Ax + By = C$$

Gradient-Intercept Form

$$y = mx + c$$

gradient (slope) \swarrow \nwarrow y-intercept



Useful for...

- Quickly finding a slope and/or y-int.
- Decent for finding y's from x's.

General Form

$$Ax + By = C \quad (A, B, \text{ and } C \text{ are coefficients.})$$

no fractions/decimals

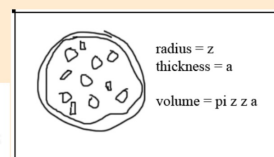
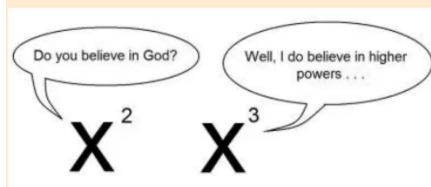
Examples: $4x + 5y = 3$ and $x - 3y = -4$

Generally written with positive coefficient of x .

Benefits...

- Find and graph x and y -intercepts.
- Can write equations without fractions/decimals.
- Preferred form when solving by elimination or matrices.

Joke Break!



Identify the form of the equation

EXERCISE 8E.1

1 State whether the following equations are in gradient-intercept form or general form:

a $y = 3x - 2$

b $5x + 2y = 8$

c $x - y = 7$

S

G

G

d $y = -x + 4$

e $y = -\frac{1}{5}x + \frac{2}{5}$

f $2x - 9y = 8$

S

S

G

Identify the form of the equation

EXERCISE 8E.1

1 State whether the following equations are in gradient-intercept form or general form:

a $y = 3x - 2$

b $5x + 2y = 8$

c $x - y = 7$

Intercept

General/
standard

General/
standard

d $y = -x + 4$

e $y = -\frac{1}{5}x + \frac{2}{5}$

f $2x - 9y = 8$

Intercept

Intercept

General/
standard

Which form would be best with each scenario?
Defend your choice and write the equation!

1) Max earns \$2 per week for allowance and \$0.50 each load of laundry he puts in the washer.



$Ax + By = C$ $y = mx + c$
 C: # of weeks
 A: # of loads
 $2C + .5A = \text{Allow}$
 $4C + A = 2\text{Allow}$

$y = .5x + 2$
 x: # loads
 y: weekly allowance

Example: Translate from...

General Form \leftrightarrow Gradient Intercept Form

$$\begin{array}{r}
 x + 5y = 9 \\
 \underline{-5y \quad -5y} \\
 x = 9 - 5y \\
 \underline{-9 \quad -9} \\
 x - 9 = -5y \\
 \underline{-5 \quad -5 \quad -5} \\
 \boxed{-\frac{x}{5} + \frac{9}{5} = y} \\
 \dots \rightarrow y = mx + c
 \end{array}$$

$$\begin{array}{r}
 y = 3x + 7 \\
 \underline{-3x \quad -3x} \\
 -3x + y = 7 \\
 \dots \rightarrow Ax + By = C
 \end{array}$$

Example: Translate from...

Gradient Intercept Form-->

General Form ...Remember - no fractions!

$$5\left(y = \frac{1}{5}x + \frac{6}{5}\right)$$

$$5y = x + 6$$

$$\boxed{-x + 5y = 6}$$


Exercises for tonight:

8E.1 #2, 3 (a-c,d-f), 4(a-b,c-f)


Challenge yourself!

Check answers online...


teamisles@weebly.com

 Standard & Extended: Mr. Ehke's height with cups (9-7)

[Download File](#)

 Standard Level: Cups Conclusion, mathematician project (9-8)

[Download File](#)

 Extended Level: Cups Conclusion, mathematician project (9-8)

[Download File](#)

 Extended Level: Slope/Gradient Review (9-11)

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Afterschool math help:

Peer tutoring until 4:30 in Garages :)

8E.1 #2, 3 (a-c,d-f), 4(a-b,c-f)

2 State the gradient and y -intercept of the line with equation:

a $y = 2x + 5$

b $y = -6x - 1$

c $y = \frac{3}{5}x - \frac{2}{5}$

d $y = 10 - x$

e $y = 1 - 4x$

f $y = \frac{5}{4} - \frac{7}{4}x$

g $y = \frac{3x+1}{7}$

h $y = \frac{4x-5}{8}$

i $y = \frac{6-7x}{9}$

3 Write the following equations in general form:

a $y = -2x + 11$

b $y = 3x - 4$

c $y = -\frac{1}{5}x + \frac{6}{5}$

d $y = -\frac{6}{7}x + \frac{5}{7}$

e $y = \frac{5}{8}x - \frac{1}{8}$

f $y = \frac{4}{9}x + 2$

4 For each of the following lines:

i write the equation in gradient-intercept form

ii state the gradient of the line.

a $3x + y = 5$

b $2x + 5y = 10$

c $7x + 4y = -9$

d $6x - y = 1$

e $5x - 11y = 2$

f $9x - 2y = -5$

8E.1 Answers

- 2 a yes b no c no d yes
- 3 a $c = 4$ b $c = -2$ c $m = \frac{1}{5}$ d $a = -2$
- 4 a $k = 11$ b $k = 19$ c $k = -4$ d $k = 10$
e $k = -6$
- 5 a above, $(5, -2)$ is above $(5, -7)$.