

$\frac{1}{2} + \frac{1}{2}$	$\frac{1}{2} + \frac{1}{4}$	$\frac{1}{2} + \frac{1}{8}$	$\frac{1}{2} + 1$
$\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$	$\frac{1}{4} + \frac{1}{4}$	$\frac{1}{4} + \frac{1}{8}$	$\frac{1}{4} + 1$
$\frac{1}{2} + \frac{1}{2} + \frac{1}{4} + \frac{1}{8}$	$\frac{1}{2} + \frac{1}{4} + \frac{1}{8}$	$\frac{1}{8} + \frac{1}{8}$	$\frac{1}{8} + 1$
$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{8}$	$\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$	$\frac{1}{4} + \frac{1}{8} + 1$	$\frac{1}{4} + 1 + \frac{1}{2}$
$\frac{2}{4} + \frac{1}{4} + \frac{3}{2}$	$\frac{3}{8} + \frac{3}{4} + \frac{3}{2}$	$\frac{3}{4} + \frac{7}{8}$	$1 + \frac{3}{8} + \frac{3}{2}$

$\frac{1}{2} + \frac{1}{2}$	$\frac{1}{2} + \frac{1}{4}$	$\frac{1}{2} + \frac{1}{8}$	$\frac{1}{2} + 1$
$\frac{1}{2} + \frac{1}{2} + \frac{1}{2}$	$\frac{1}{4} + \frac{1}{4}$	$\frac{1}{4} + \frac{1}{8}$	$\frac{1}{4} + 1$
$\frac{1}{2} + \frac{1}{2} + \frac{1}{4} + \frac{1}{8}$	$\frac{1}{2} + \frac{1}{4} + \frac{1}{8}$	$\frac{1}{8} + \frac{1}{8}$	$\frac{1}{8} + 1$
$\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{8}$	$\frac{1}{4} + \frac{1}{4} + \frac{1}{4}$	$\frac{1}{4} + \frac{1}{8} + 1$	$\frac{1}{4} + 1 + \frac{1}{2}$
$\frac{2}{4} + \frac{1}{4} + \frac{3}{2}$	$\frac{3}{8} + \frac{3}{4} + \frac{3}{2}$	$\frac{3}{4} + \frac{7}{8}$	$1 + \frac{3}{8} + \frac{3}{2}$

Name: \_\_\_\_\_ Partner's Name: \_\_\_\_\_

You and your partner have 4 sheets of paper. (orange, yellow, green, and white). Together you must write the Slope-Intercept Form of the equation of the line.

Green (just write the number the graph is)	Equation of line in S-I Form
Orange Write the 2 given points	Equation of line in S-I Form
White Write the equation given in Point-Slope Form	Equation of line in S-I Form
Yellow Write the equation given in Standard Form	Equation of line in S-I Form

Now switch with a group and do the same thing with their 4 cards. Make sure all 4 of you have the same answers.

Green (just write the number the graph is)	Equation of line in S-I Form
Orange Write the 2 given points	Equation of line in S-I Form
White Write the equation given in Point-Slope Form	Equation of line in S-I Form
Yellow Write the equation given in Standard Form	Equation of line in S-I Form

Now switch with a group and do the same thing with their 4 cards. Make sure all 4 of you have the same answers.

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Orange Write the 2 given points	Equation of line in S-I Form
White Write the equation given in Point-Slope Form	Equation of line in S-I Form
Yellow Write the equation given in Standard Form	Equation of line in S-I Form

Now switch with a group and do the same thing with their 4 cards. Make sure all 4 of you have the same answers.

Green (just write the number the graph is)	Equation of line in S-I Form
Orange Write the 2 given points	Equation of line in S-I Form
White Write the equation given in Point-Slope Form	Equation of line in S-I Form
Yellow Write the equation given in Standard Form	Equation of line in S-I Form

25)  $22 + 6^2(8) - (-2)$

A) 466

B) 312

C) 46

D) 38

Solve.

$$38) x - 7 = -3$$

A) 4

B) -4

C) 10

D) -10

Write a true sentence using either  $<$  or  $>$ .

$$31) -7\frac{1}{4} \text{ --- } -3\frac{10}{13}$$

$$A) -7\frac{1}{4} > -3\frac{10}{13}$$

$$B) -7\frac{1}{4} < -3\frac{10}{13}$$

Write exponential notation.

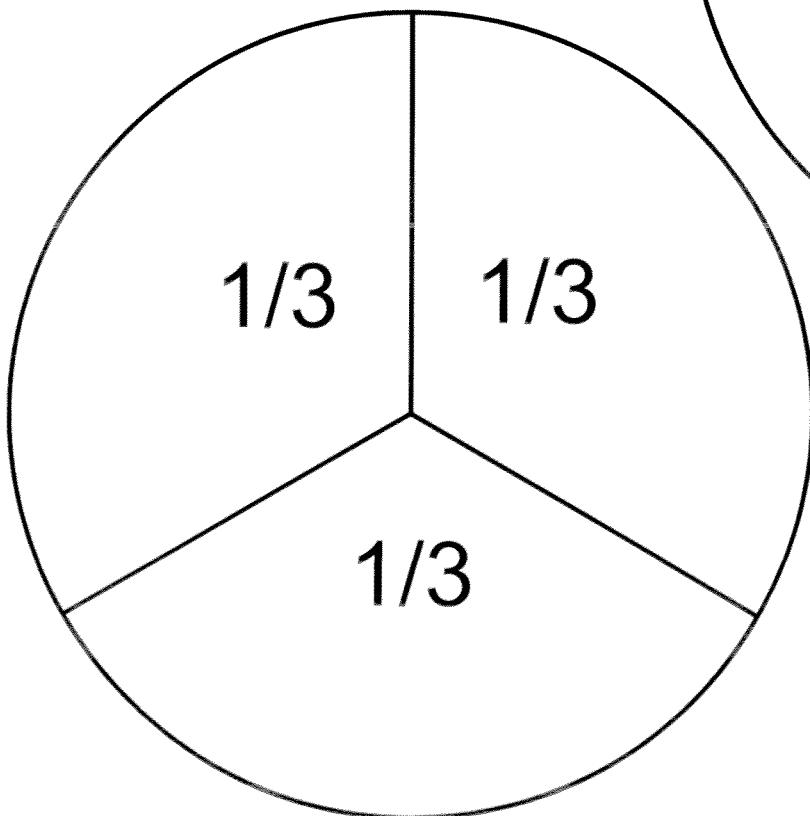
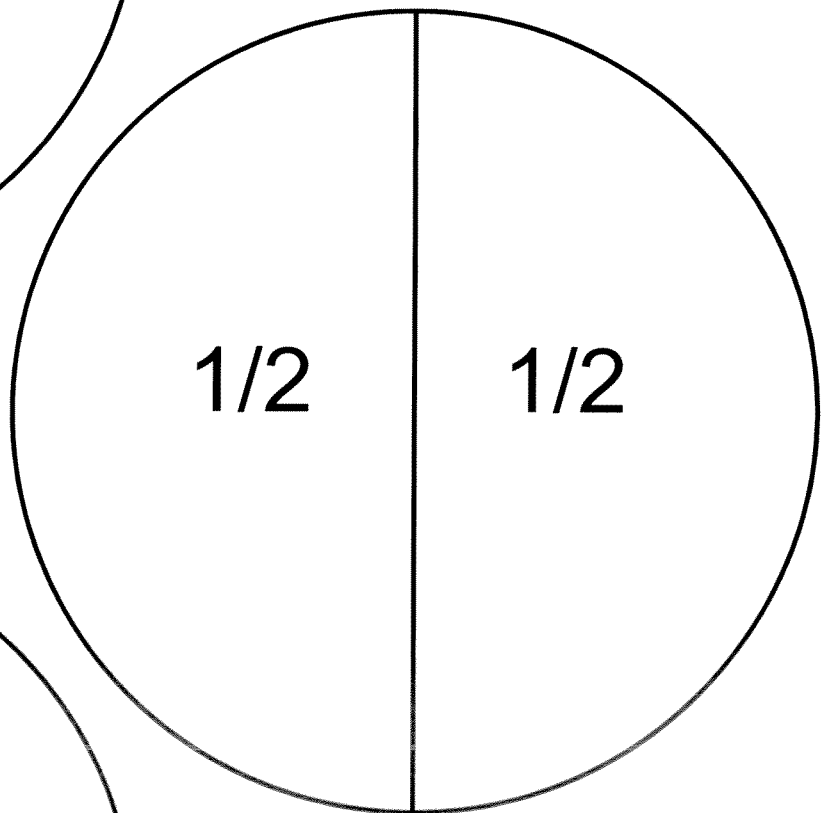
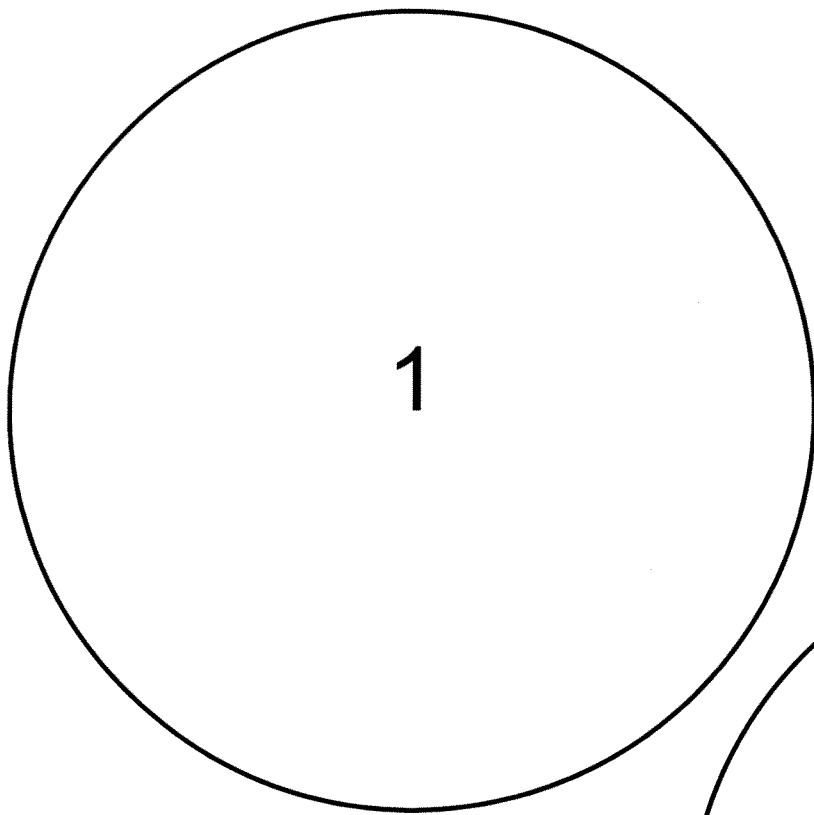
9)  $(-8) \cdot (-8) \cdot (-8) \cdot (-8) \cdot (-8) \cdot (-8)$

A)  $6(-8)$

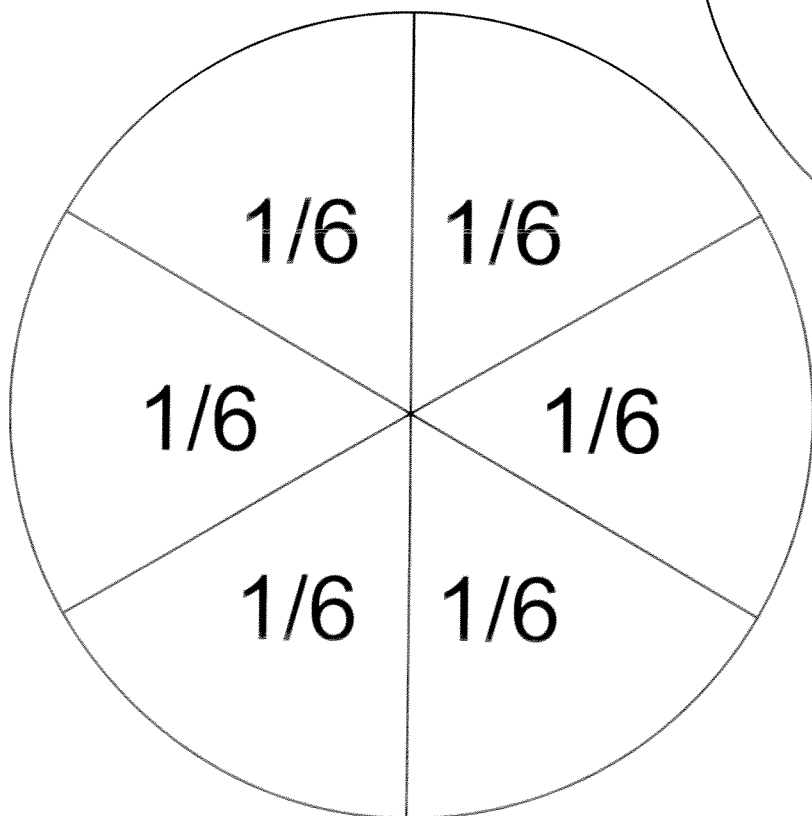
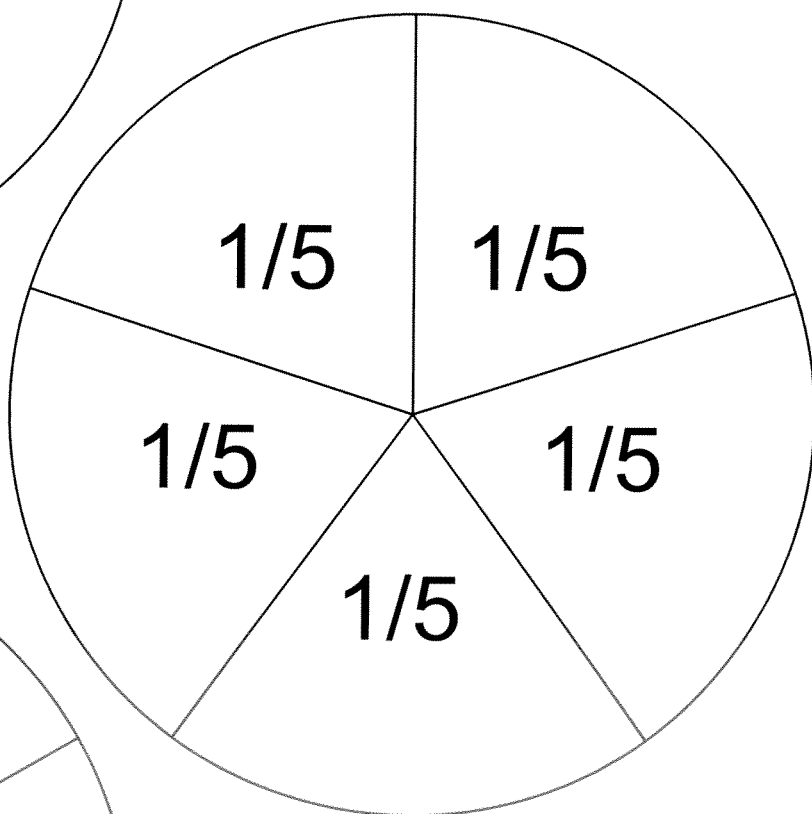
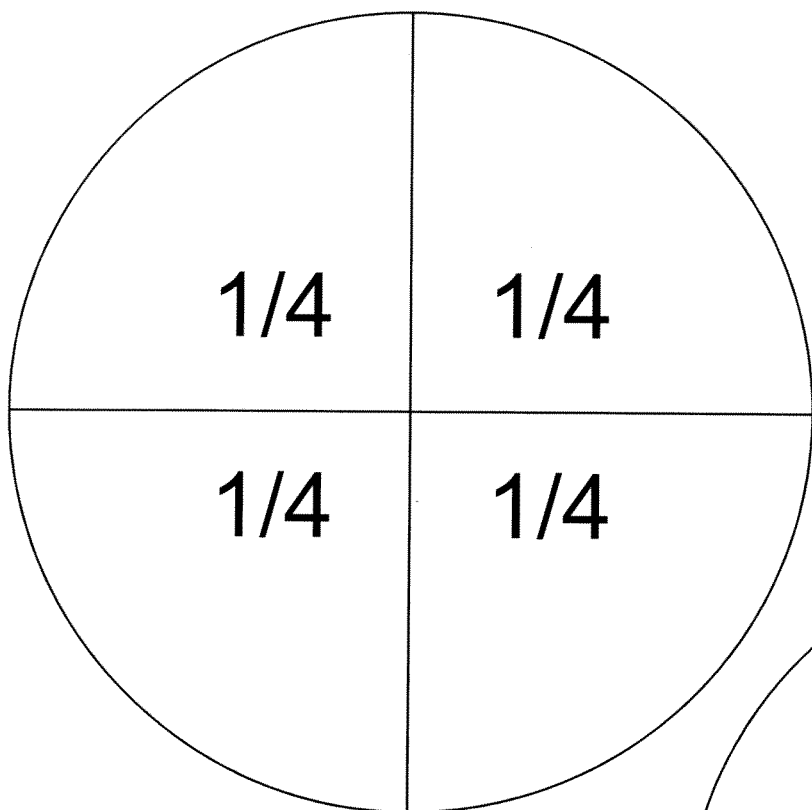
B)  $(-8)^6$

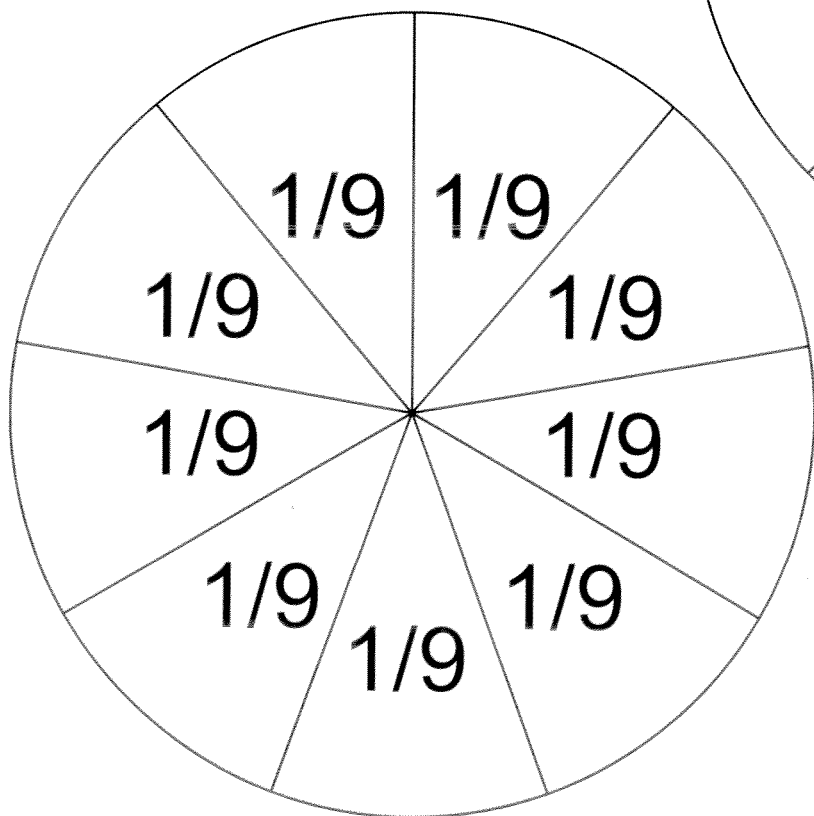
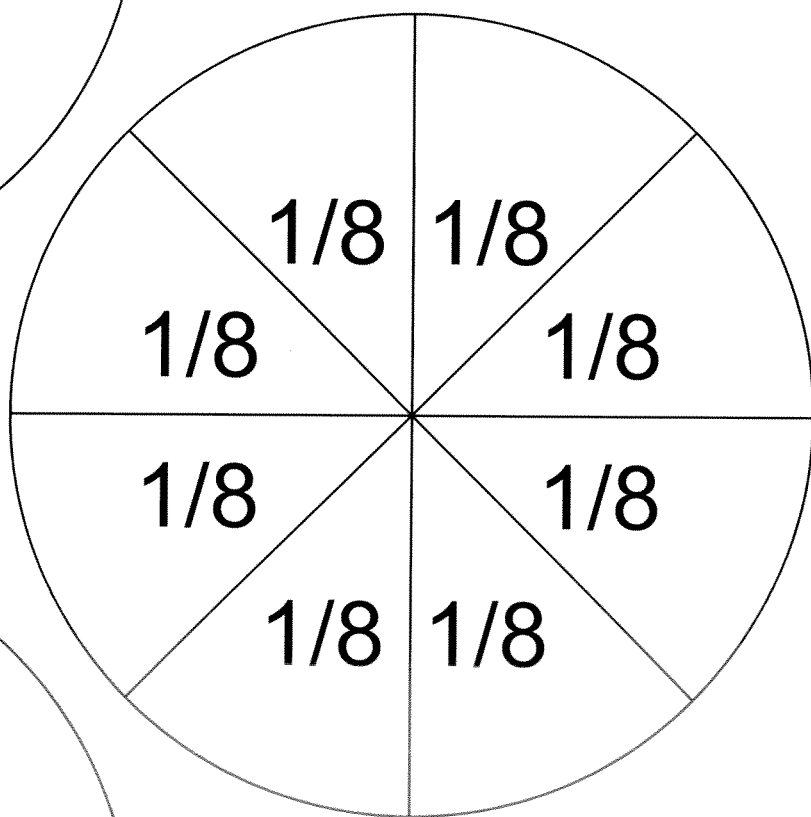
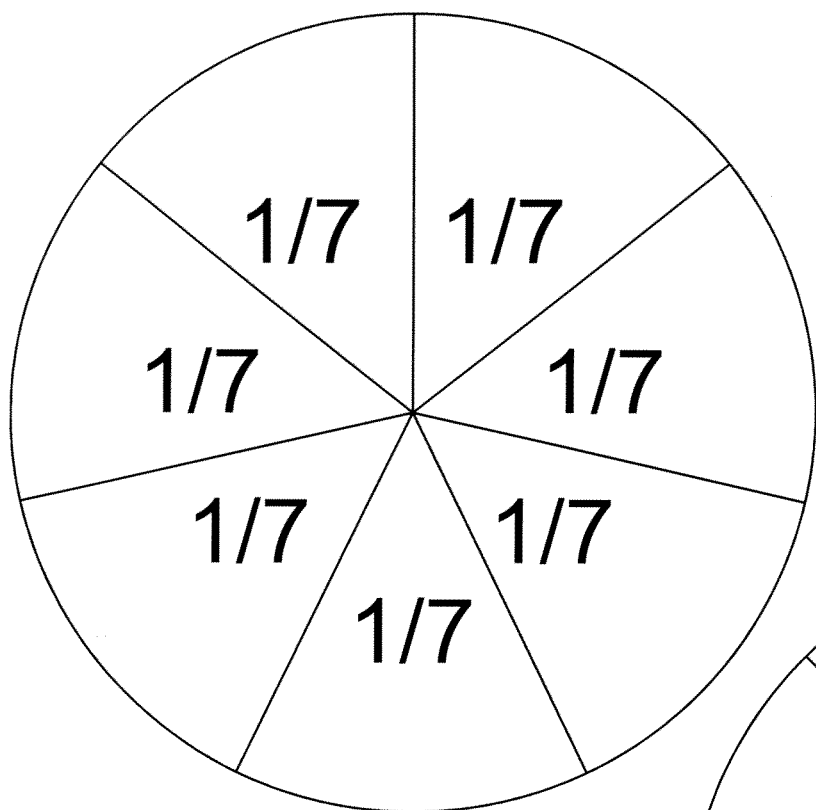
C)  $-(8)^6$

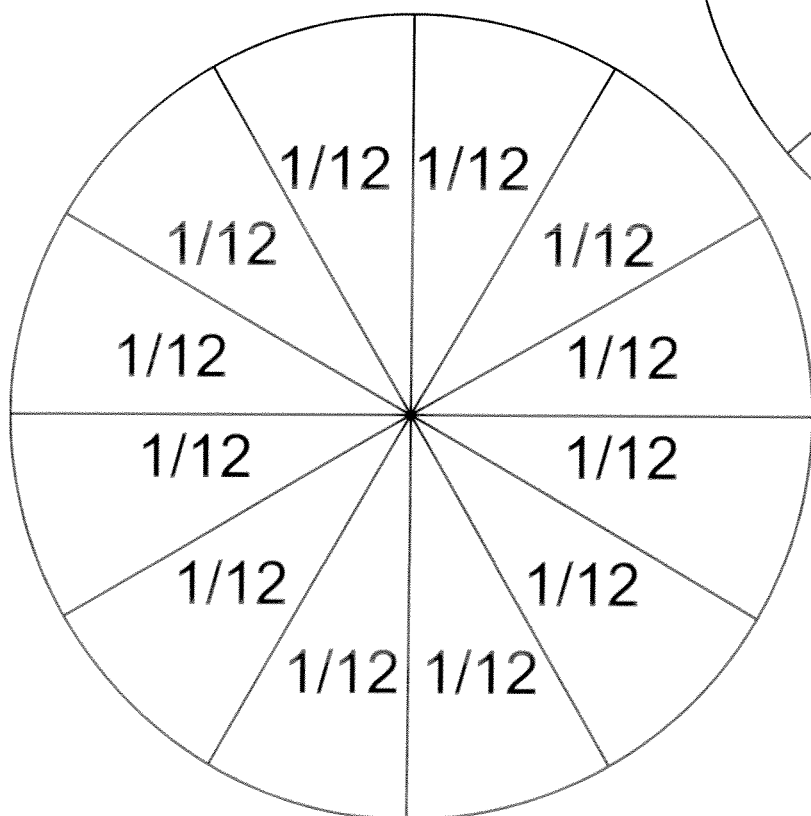
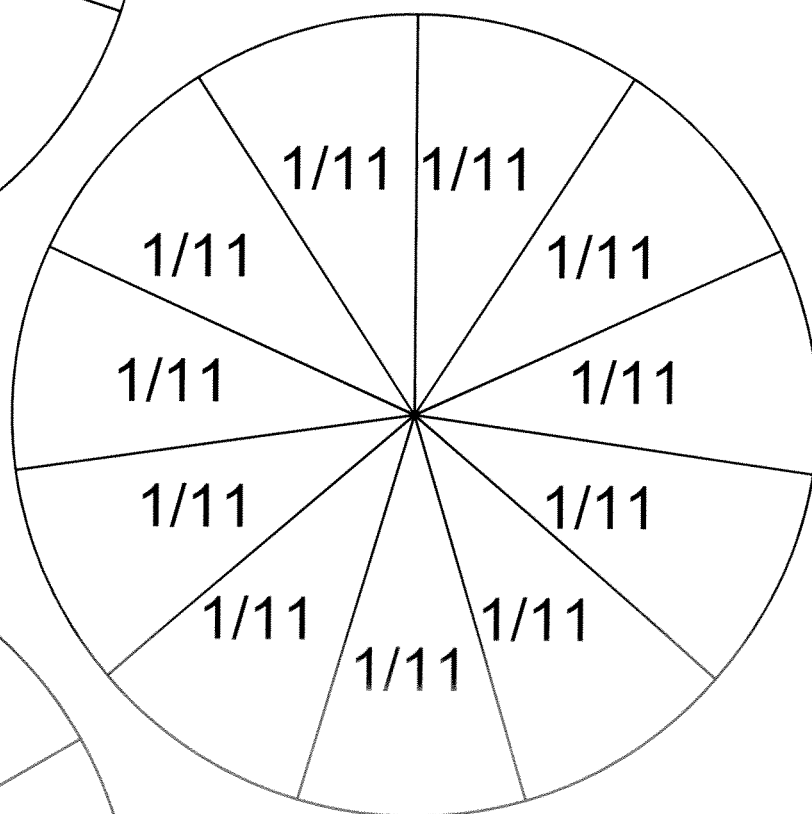
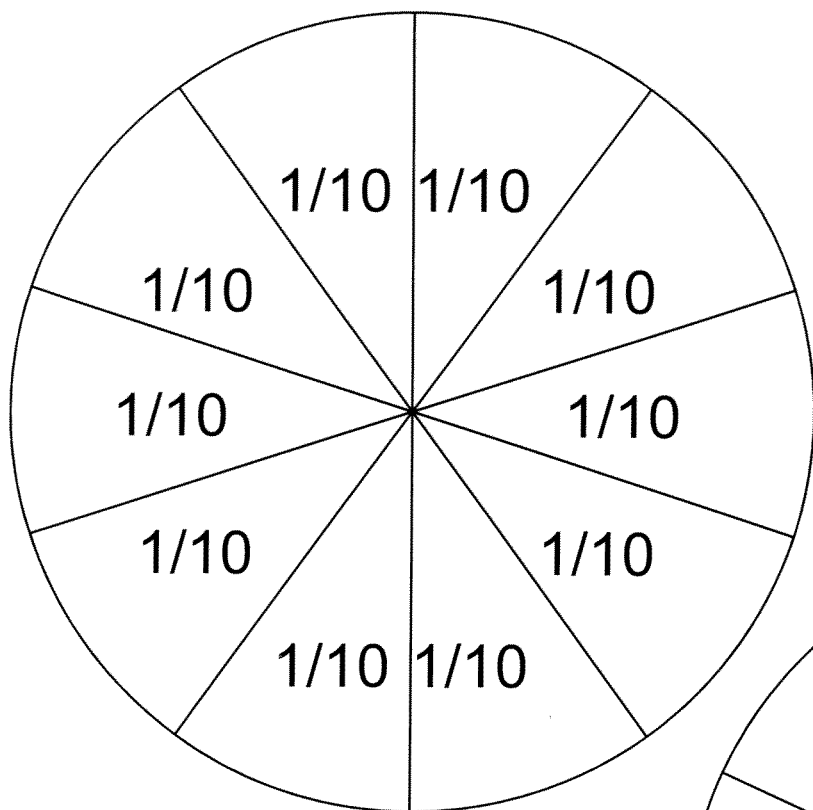
D)  $-48$











Your Bag	Write as a fraction	Simplest form	Equivalent fraction by doubling	Equivalent fraction by tripling
# of yellow				
# of red				
#of green				
# of blue				
# of orange				
# of brown				
Total				

Your Bag	Write as a fraction	Simplest form	Equivalent fraction by doubling	Equivalent fraction by tripling
# of yellow				
# of red				
#of green				
# of blue				
# of orange				
# of brown				
Total				

Name: \_\_\_\_\_ Opponent: \_\_\_\_\_

**Write the equation of the line for your ships**

Aircraft Carrier:  $y =$  \_\_\_\_\_

Battleship:  $y =$  \_\_\_\_\_

Submarine:  $y =$  \_\_\_\_\_

Destroyer:  $y =$  \_\_\_\_\_

PT boat:  $y =$  \_\_\_\_\_

**After you sink one of your opponent's ships...**

**Write the equation of the line for the ship**

Aircraft Carrier:  $y =$  \_\_\_\_\_

Battleship:  $y =$  \_\_\_\_\_

Submarine:  $y =$  \_\_\_\_\_

Destroyer:  $y =$  \_\_\_\_\_

PT boat:  $y =$  \_\_\_\_\_

Opponent: \_\_\_\_\_

*Sink your opponent's fleet before they sink yours!*

[illegible]A blank coordinate plane with x and y axes ranging from -5 to 5. The grid lines are spaced at 1-unit intervals. The x-axis is labeled with integers from -5 to 5, and the y-axis is labeled with integers from -5 to 5.

Aircraft Carrier ☐☐☐☐☐  
 Battleship ☐☐☐☐  
 Submarine ☐☐☐  
 Destroyer ☐☐☐  
 PT Boat ☐☐

Place 5 ships on your board:

- 1 aircraft carrier - 5 points long
- 1 battleship - 4 points
- 1 submarine - 3 points
- 1 destroyer - 3 points
- 1 PT boat - 2 points

Label the coordinate plane:

- x-axis
- y-axis
- origin
- Quadrants I, II, III, IV

When your opponent fires  
at you:

- Mark **X** if they hit one of your ships
- Mark **●** when they miss
- Write the coordinate in the table
- Update Fleet Status →

## Teacher Instructions

1. Give each student a notecard or have them use a sheet of scratch paper.
2. Have students write down their favorite ordered pair. I mean, who doesn't have a FAVORITE ordered pair?!
3. Students will stand up, MIX (walk) around the room, and as they pass another student, they say hi and trade cards. They continue doing this until you say FREEZE. When you say FREEZE, they PAIR up with a person next to them. They now have two notecards with two ordered pairs.
4. Using their notecards, they can find the slope, equation, and graph. I usually give them this work sheet to carry with them for writing down their calculations, but again they can use scratch paper or small dry erase boards.
5. Once you see that the students are ready to switch again, have the students MIX (continually trading cards so they aren't using the same point for each problem), FREEZE, and PAIR. I usually had them switch 3 or 4 times, depending on time. I also insisted they found a new partner each time they paired up so that way they were working with new people all the time.

# Mix, Freeze, Pair

## Linear Equations

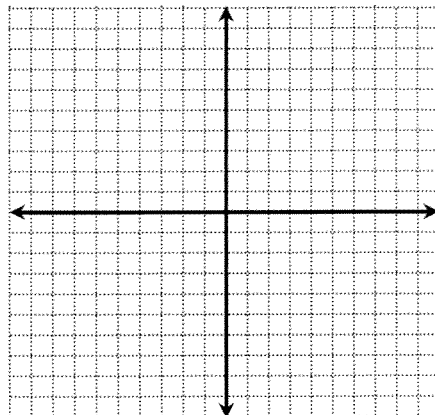
1. Point 1 \_\_\_\_\_

Point 2 \_\_\_\_\_

Slope:

Graph:

Equation:



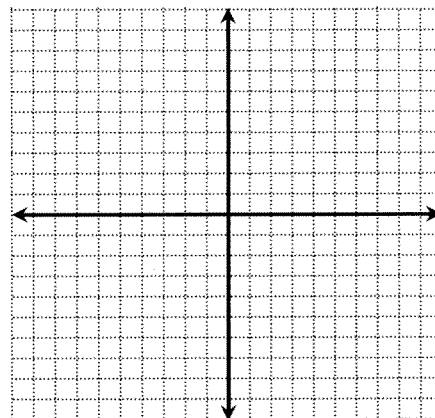
2. Point 1 \_\_\_\_\_

Point 2 \_\_\_\_\_

Slope:

Graph:

Equation:



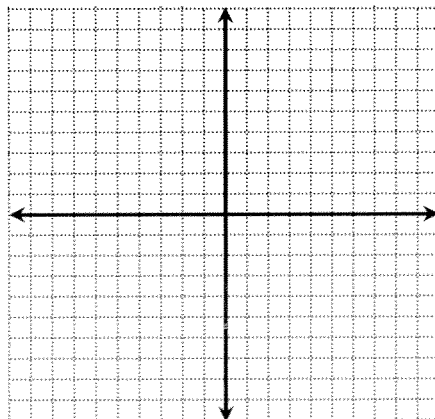
3. Point 1 \_\_\_\_\_

Point 2 \_\_\_\_\_

Slope:

Graph:

Equation:



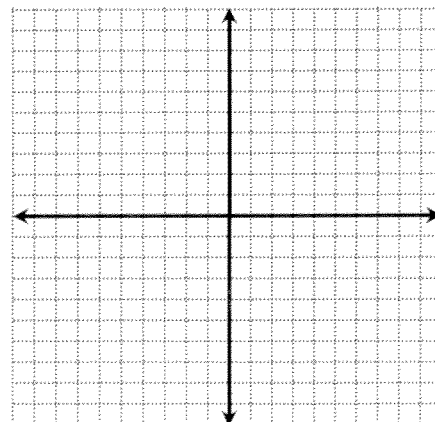
4. Point 1 \_\_\_\_\_

Point 2 \_\_\_\_\_

Slope:

Graph:

Equation:





I HAVE  
 $Y = 7x - 6$

I HAVE  
 $M = 7$

WHO HAS  
THE SLOPE OF MY LINE?

WHO HAS  
THE Y-INTERCEPT OF  
 $3x + y = 10$ ?

I HAVE  
10

I HAVE  
 $Y = -1/3x - 4$

WHO HAS  
THE EQUATION OF A LINE  
THAT IS PERPENDICULAR  
TO  $Y = 3x + 2$  & RUNS  
THROUGH POINT (0, -4)?

WHO HAS  
THE EQUATION OF A LINE  
THAT IS PARALLEL TO  
 $Y = -1/3x - 4$  & RUNS  
THROUGH POINT (0,2)?

**I HAVE**

$$Y = -1/3x + 2$$

**I HAVE**

$$(6, 0)$$

**WHO HAS**

**THE X –INTERCEPT OF MY  
LINE ( $Y = -1/3x + 2$ )?**

**WHO HAS**

**THE EQUATION OF A LINE  
THAT HAS A SLOPE THAT IS  
THE ABSOLUTE VALUE -7?**

**I HAVE**

$$Y = 7x - 5$$

**I HAVE**

$$(0, -5)$$

**WHO HAS**

**THE Y-INTERCEPT OF MY  
LINE ( $Y = 7x - 5$ )?**

**WHO HAS**

**THE DEFINITION OF  
SLOPE?**

<p><b>I HAVE</b></p> <p><b>THE CHANGE OF THE VERTICAL DISTANCE DIVIDED BY THE CHANGE OF THE HORIZONTAL DISTANCE.</b></p>	<p><b>I HAVE</b></p> <p><b>IT CAME FROM THE FRENCH WORD, MONTER, WHICH MEANS, “TO CLIMB.”</b></p>
<p><b>WHO HAS</b></p> <p><b>THE REASON WHY THE LETTER “M” IS USED TO REPRESENT SLOPE?</b></p>	<p><b>WHO HAS</b></p> <p><b>THE NAME OF THE SINGER WHO SINGS THE FAMOUS SONG “THE CLIMB?”</b></p>
<p><b>I HAVE</b></p> <p><b>MILEY CIRUS-HAHA</b></p> <p><b>OK...BACK TO SLOPE!</b></p>	<p><b>I HAVE</b></p> <p><b>THE SET OF ALL INPUT VALUES (OR X-VALUES)</b></p>
<p><b>WHO HAS</b></p> <p><b>THE DEFINITION OF DOMAIN?</b></p>	<p><b>WHO HAS</b></p> <p><b>WHO HAS THE RANGE FOR THE FOLLOWING FUNCTION...</b></p> <p><b>(1, 7)(2, 9)(-3, 4)(-4, 2)?</b></p>

<p><b>I HAVE</b></p> <p><b>2, 4, 7 &amp; 9</b></p>	<p><b>I HAVE</b></p> <p><b>A MAPPING DIAGRAM</b></p>
<p><b>WHO HAS</b></p> <p><b>ONE WAY WE CAN REPRESENT A FUNCTION?</b></p>	<p><b>WHO HAS</b></p> <p><b>THE DEFINITION OF A FUNCTION?</b></p>
<p><b>I HAVE</b></p> <p><b>IF EVERY INPUT VALUE HAS EXACTLY ONE OUTPUT VALUE.</b></p>	<p><b>I HAVE</b></p> <p><b>WHERE A GRAPH INTERSECTS THE Y-AXIS.</b></p>
<p><b>WHO HAS</b></p> <p><b>THE DEFINITION OF A Y-INTERCEPT?</b></p>	<p><b>WHO HAS</b></p> <p><b>THE DOMAIN OF THE FOLLOWING FUNCTION...</b></p> <p><b>(4, -5)(2, 7)</b></p> <p><b>(3, -18)(20,1)?</b></p>

I HAVE  
2, 3, 4 & 20

I HAVE  
 $Y = MX + B$

WHO HAS  
SLOPE-INTERCEPT FORM?

WHO HAS  
THE FORMULA FOR  
FINDING SLOPE?

I HAVE  
$$\frac{Y^2 - Y^1}{X^2 - X^1}$$

I HAVE  
(4, -47)

WHO HAS  
A POINT THAT IS ON THE  
LINE:  $Y = -10X - 7$ ?

WHO HAS  
A POINT THAT IS ON THE  
LINE  $2X + Y = -3$ ?

**I HAVE**  
**(16, -35)**

**I HAVE**  
 **$M = -9/4$**

**WHO HAS**  
**THE SLOPE OF A LINE**  
**THAT PASSES THROUGH**  
**(0, 7) & (4, -2)?**

**WHO HAS**  
**THE SLOPE OF A LINE**  
**THAT PASSES THROUGH**  
**(-7, 8) & (0, 12)?**

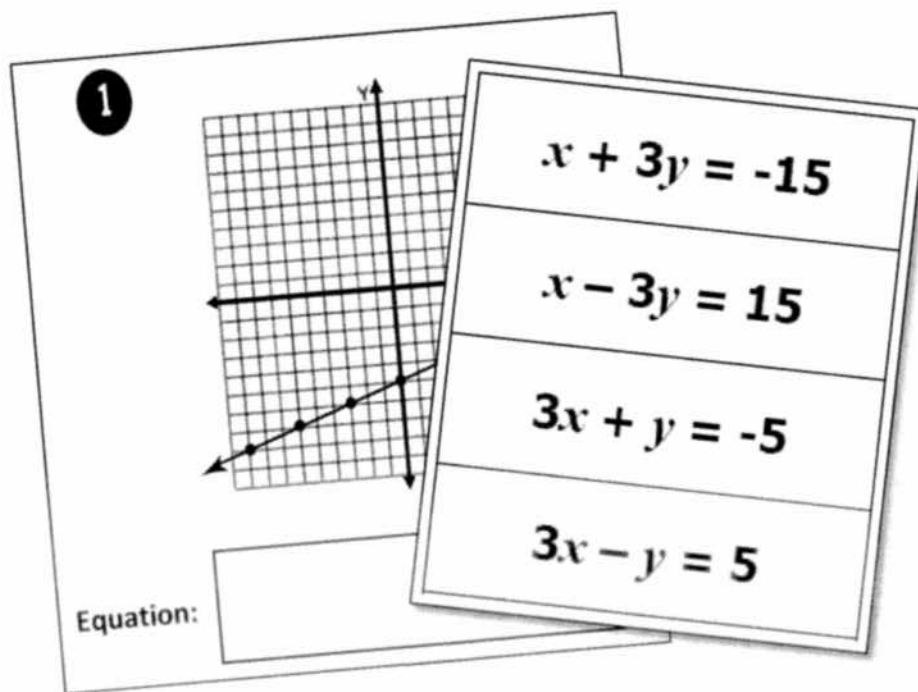
**I HAVE**  
 **$M = 4/7$**

**I HAVE**  
 **$M = 1/22$**

**WHO HAS**  
**THE SLOPE OF A LINE**  
**THAT IS PERPENDICULAR**  
**TO  $Y = -22X + 14$ ?**

**WHO HAS**  
**THE EQUATION OF A LINE**  
**WITH A SLOPE OF 7 & A**  
**Y-INTERCEPT OF (0, -6)?**

# LINEAR EQUATIONS



Cut & Paste  
Activity!

all  
things  
algebra

# matching equations & graphs

## Activity Directions

Give students both the "Matching Equations & Graphs" Worksheet and the page with all the equations. Students must figure out the equation of the line by determining its slope and y-intercept. On the equations sheet, all the equations are in standard form. They must determine which standard form equation matches their slope-intercept form equation. They paste this equation onto the graphs worksheet.

**MATCHING EQUATIONS & GRAPHS**

**1**

Equation:

**2**

Equation:

**3**

Equation:

**4**

Equation:

**5**

Equation:

**6**

Equation:

**7**

Equation:

**8**

Equation:

**9**

Equation:

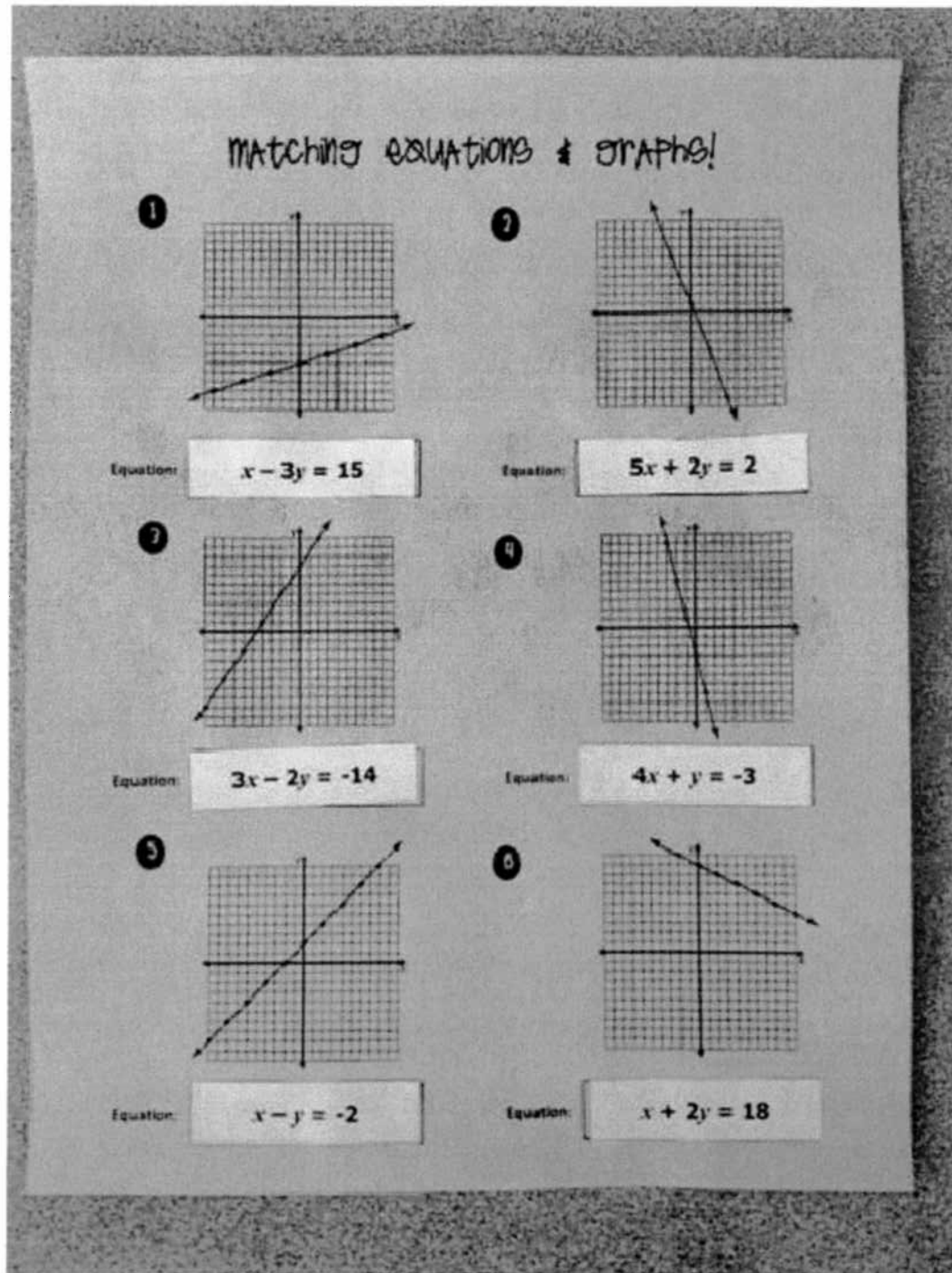
**10**

Equation:

$x + 3y = -15$	$2x + 5y = 5$	$2x + 3y = 21$	$x + 4y = -12$
$x - 2y = 15$	$2x - 5y = -5$	$2x - 3y = -21$	$x - 4y = 12$
$3x + y = -5$	$5x + 2y = 2$	$3x + 2y = 14$	$4x + y = -3$
$3x - y = 5$	$5x - 2y = -2$	$3x - 2y = -14$	$4x - y = 3$
$x + y = 2$	$x + 2y = 18$	$x + 2y = 0$	$3x + 4y = 16$
$x + y = -2$	$x - 2y = -18$	$x - 2y = 0$	$3x - 4y = -16$
$x - y = 2$	$2x + y = 0$	$2x + y = 0$	$4x + 3y = 12$
$x - y = -2$	$2x - y = -9$	$2x - y = 0$	$4x - 3y = -12$
$x + y = 8$	$2x + 7y = -21$		
$x - y = 8$	$2x - 7y = 21$		
$x + y = -8$	$7x + 2y = -6$		
$x - y = -8$	$2x - 2y = 6$		

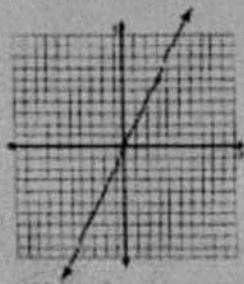


## Front Side Key:



## Back Side Key:

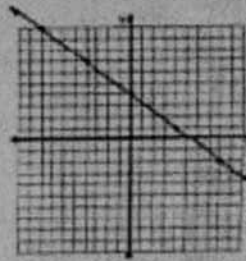
1



Equation:

$$2x - y = 0$$

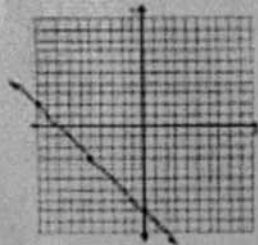
6



Equation:

$$3x + 4y = 16$$

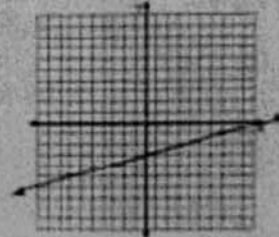
9



Equation:

$$x + y = -8$$

10

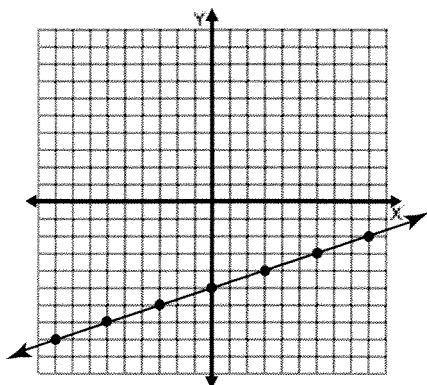


Equation:

$$2x - 7y = 21$$

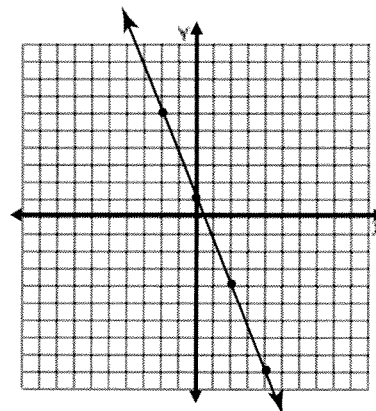
# Matching Equations & Graphs!

1



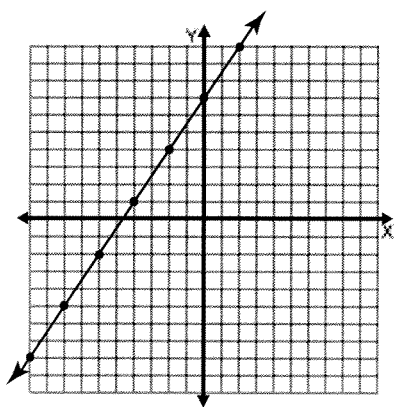
Equation:

2



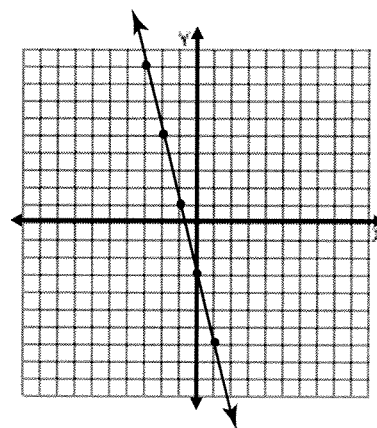
Equation:

3



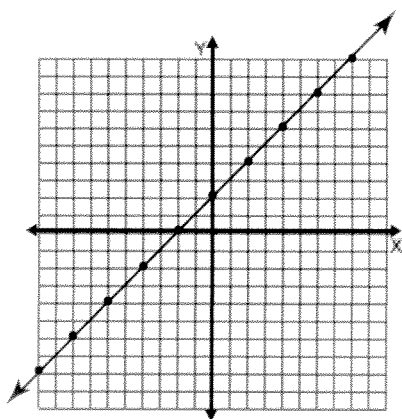
Equation:

4



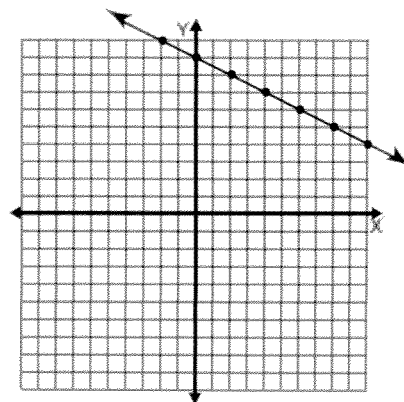
Equation:

5



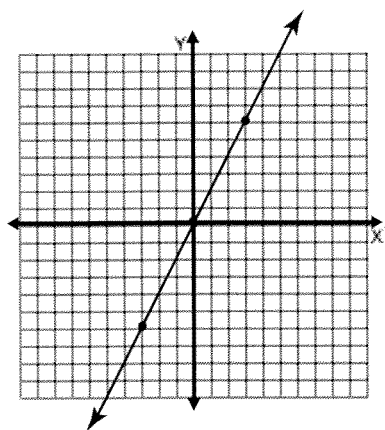
Equation:

6



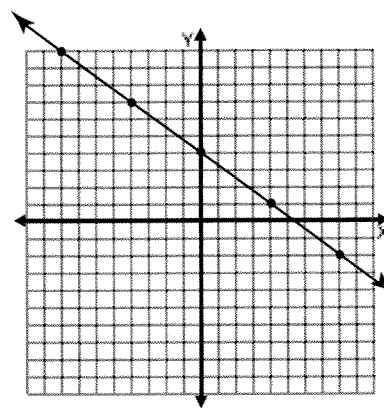
Equation:

1



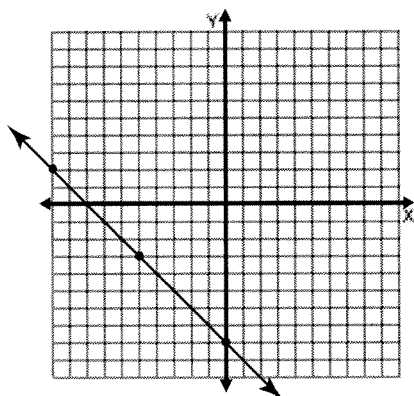
Equation

8



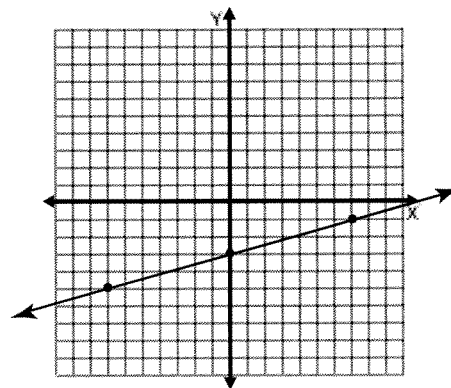
Equation:

9



Equation:

10



Equation:

$x + 3y = -15$
$x - 3y = 15$
$3x + y = -5$
$3x - y = 5$

$2x + 5y = 5$
$2x - 5y = -5$
$5x + 2y = 2$
$5x - 2y = -2$

$2x + 3y = 21$
$2x - 3y = -21$
$3x + 2y = 14$
$3x - 2y = -14$

$x + 4y = -12$
$x - 4y = 12$
$4x + y = -3$
$4x - y = 3$

$x + y = 2$
$x + y = -2$
$x - y = 2$
$x - y = -2$

$x + 2y = 18$
$x - 2y = -18$
$2x + y = 9$
$2x - y = -9$

$x + 2y = 0$
$x - 2y = 0$
$2x + y = 0$
$2x - y = 0$

$3x + 4y = 16$
$3x - 4y = -16$
$4x + 3y = 12$
$4x - 3y = -12$

$x + y = 8$
$x - y = 8$
$x + y = -8$
$x - y = -8$

$2x + 7y = -21$
$2x - 7y = 21$
$7x + 2y = -6$
$7x - 2y = 6$

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# Linear Equation Matching Cut-out Activity



## Instructions:

Page one is the answer key, the second page contains the student instructions and the cut-out pieces. Provide each student or each group of students with the instruction sheet along with scissors, a larger sheet of paper (i.e. construction paper or poster paper), and a glue stick or tape. The assignment is to match each equation to its alternate description such as a table, graph, description, or word problem. Variations: Make this a competition (the first group to finish wins) or give each student just one card and have them try to find the person that has the matching card in the class.



*Derek Follett*

Answer Key:

$$y = 3x + 1$$

A line that contains the point (1, 5) and (-3, 1)

$$y = x - 3$$

x	y
-9	-5
-6	-3
-3	-1
0	1
3	3

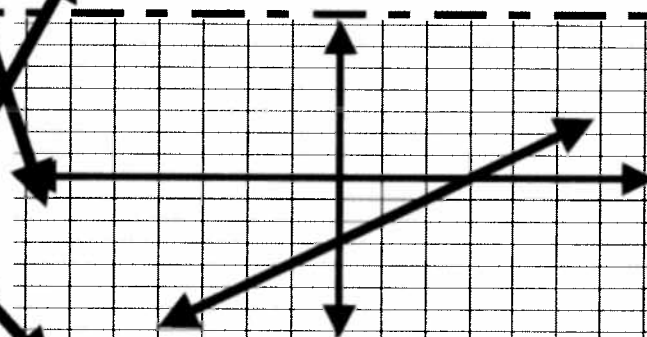
$$y = \frac{2}{3}x + 1$$

A line with a slope of 3 and a y-intercept of 1

$$y = 4x + 1$$

A line with a y-intercept of 6 and an x-intercept of 9.

$$y = x + 4$$



$$2x + 3y = 18$$

Mr. Jones gives his students 1 homework problem during the first week of school, then adds 4 more problems every week after that.



Instructions:

Cut out each card then match each equation (left) to their descriptions (right).

$$y = 3x + 1$$

A line that contains the point (1, 5) and (-3, 1)

$$y = x - 3$$

x	y
-9	-5
-6	-3
-3	-1
0	1
3	3

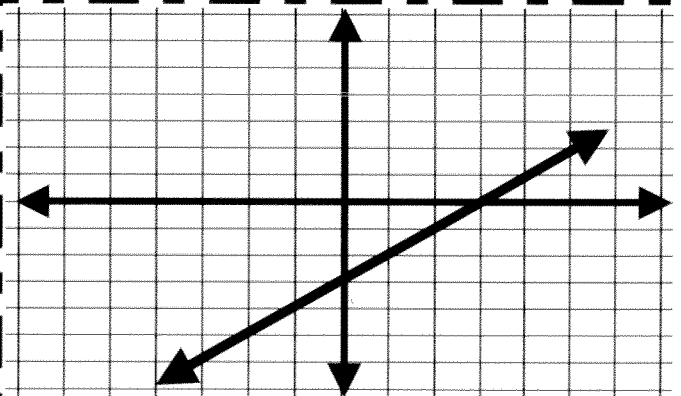
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# SLOPE MINI-PROJECT

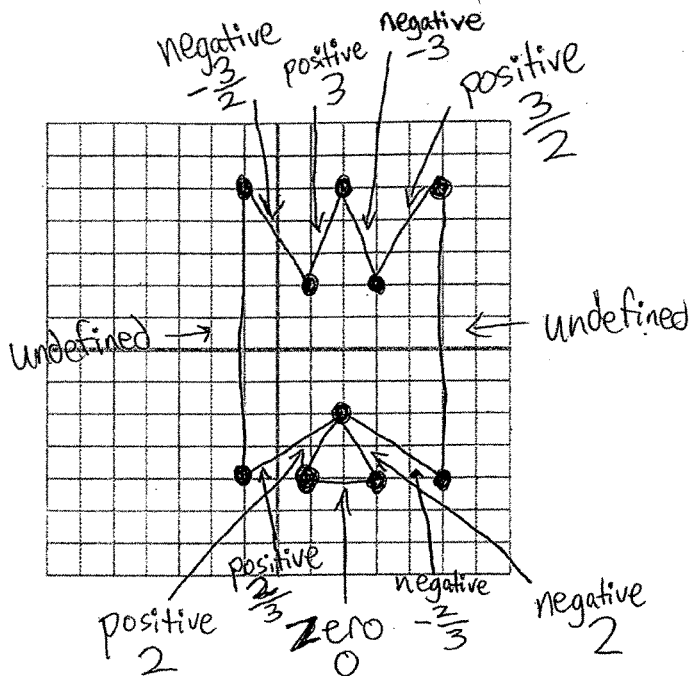
Algebra I, Mr. D

NAME:

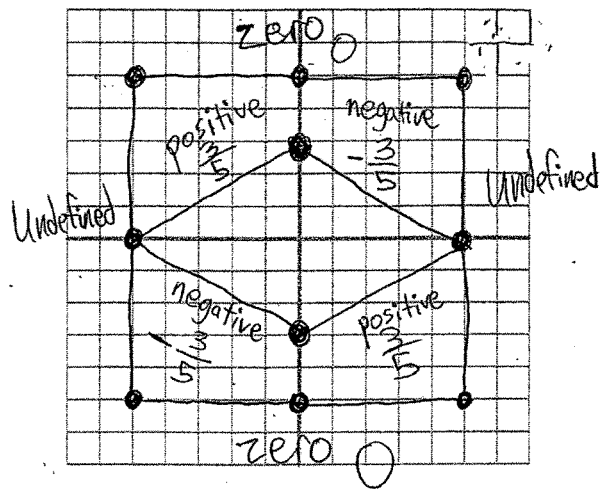
Thursday, December 04, 2008

Directions: Create any picture you want using a **minimum of 10 points**. You may use only straight lines! Find the **slope** of each line label each one as positive, negative, zero, or undefined slope.

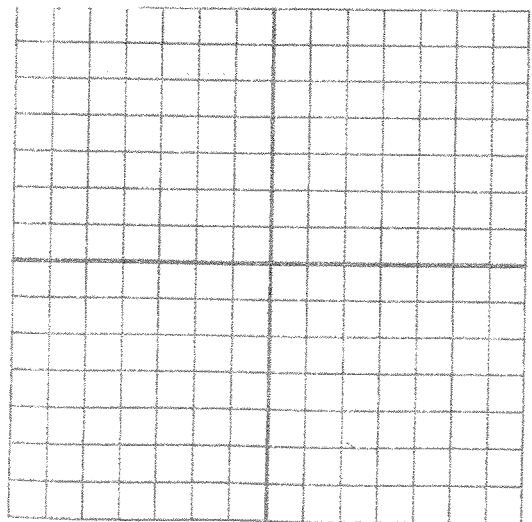
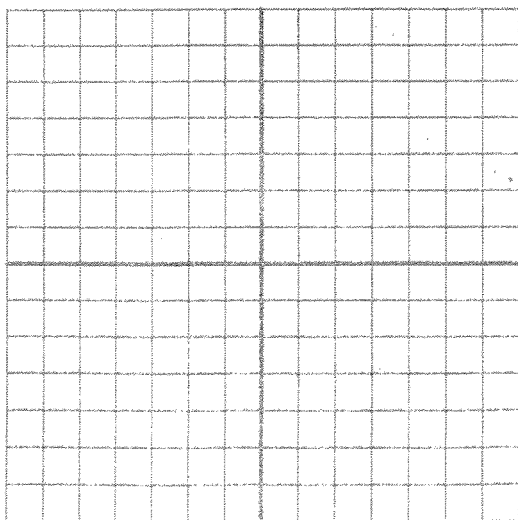
**EXAMPLE 1**



**EXAMPLE 2**



You only have to make 1 picture. I gave you 2 graphs in case you need to redo it.



Name A \_\_\_\_\_

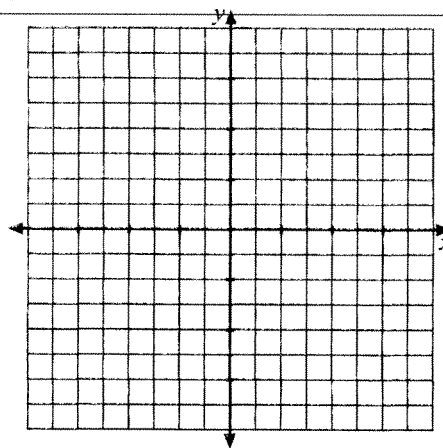
Name B \_\_\_\_\_

Name C \_\_\_\_\_

A Solve by Graphing

$$2x + y = 3$$

$$x - y = 3$$



B Solve by Substitution

$$2x + y = 3$$

$$x - y = 3$$

C Solve by Elimination

$$2x + y = 3$$

$$x - y = 3$$

A Solve by Substitution

$$\begin{aligned}y - 2x &= 3 \\ 2x - 3y &= 3\end{aligned}$$

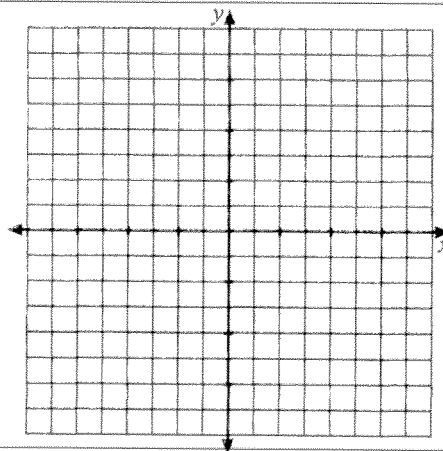
B Solve by Elimination

$$\begin{aligned}y - 2x &= 3 \\ 2x - 3y &= 3\end{aligned}$$

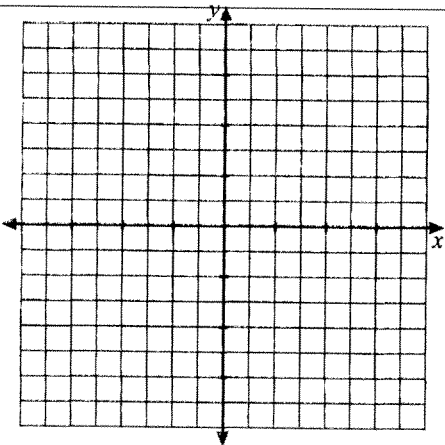
\*\* be sure the x and y are lined up

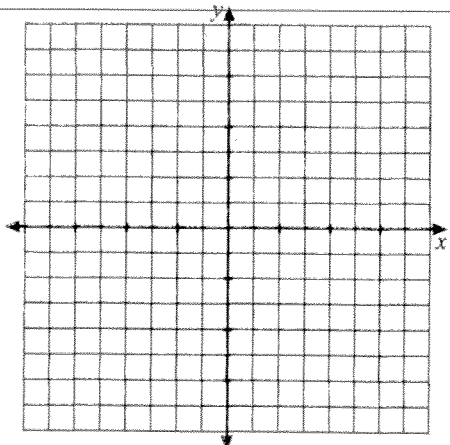
C Solve by Graphing

$$\begin{aligned}y - 2x &= 3 \\ 2x - 3y &= 3\end{aligned}$$



A   Solve by Elimination	$4x - y = 3$ $-5x + 2y = 0$
B   Solve by Graphing	$4x - y = 3$ $-5x + 2y = 0$
C   Solve by Substitution	$4x - y = 3$ $-5x + 2y = 0$



A Solve by Substitution	$3x + y = 5$ $5x + 2y = 8$
B Solve by Elimination	$3x + y = 5$ $5x + 2y = 8$
C Solve by Graphing	$3x + y = 5$ $5x + 2y = 8$
	

Exponent Rules Chapter 5

Product Rule		
Power Rule		
Power of a Product		
Power of a Quotient		
Quotient Rule		
Zero Exponent		
Negative Exponent		

Exponent Rules Chapter 5

Product Rule		
Power Rule		
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Name: \_\_\_\_\_

Date: \_\_\_\_\_

## Popcorn and Kernel: Polynomials

### Instructions:

We are going to have more than one set of partners today. There will be no repeating partners. The steps below apply to each new location.

1. Make sure you and your partner know each other. If you do not, take a second to introduce yourself.
2. From the cards on the kernel's desk, find the problem your teacher tells you to look for. You and your partner will have different problems that you will solve on your own.
3. Copy down the problem on this sheet and begin working. Answer the justification questions.
4. Check / share with your partner. Use the justifications you wrote down if you feel like you don't have anything to say. Also use this opportunity to help your classmate if they made a mistake

Problem 1	<p>Justification 1</p> <p>Which method of factoring did you use?</p> <p>_____</p> <p>What about this problem caused you to solve it that way?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>
Problem 2	<p>Justification 2</p> <p>Which method of factoring did you use?</p> <p>_____</p> <p>What about this problem caused you to solve it that way?</p> <p>_____</p> <p>_____</p> <p>_____</p> <p>_____</p>

<p>Problem 3</p>	<p>Justification 3</p> <p>Which method of factoring did you use?</p> <hr/> <hr/> <p>What about this problem caused you to solve it that way?</p> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>Problem 4</p>	<p>Justification 4</p> <p>Which method of factoring did you use?</p> <hr/> <hr/> <p>What about this problem caused you to solve it that way?</p> <hr/> <hr/> <hr/> <hr/> <hr/>
<p>Problem 5</p>	<p>Justification 5</p> <p>Which method of factoring did you use?</p> <hr/> <hr/> <p>What about this problem caused you to solve it that way?</p> <hr/> <hr/> <hr/> <hr/> <hr/>

1. $81c^2 - 25$	1. $7ab^2 - 14a^2b^3 - 21ab^4$
2. $x^2 + 11x + 18$	2. $14x^2 - 169$
3. $x^2 - 2x + 13x^3$	3. $v^2 - 2v - 24$
4. $4g^2h^3 + 8g^2h - 18g^3$	4. $6n^3 - 18mn^2 + 9m^2n^2$
5. $9x^4 - 100z^2$	5. $g^2 + 8g - 20$

**FREEBIE**

*Cut and Glue*

# **FACTORING POLYNOMIALS**



$$x^2 - x - 6 = \boxed{(x+2)} \boxed{(x-3)}$$



*Cut and Glue*  
**FACTORING  
POLYNOMIALS**

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available through,

[www.MathtotheCore.com](http://www.MathtotheCore.com)

Please contact me if you have any questions, comments, or  
suggestions at  
[e.james@me.com](mailto:e.james@me.com)

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Name \_\_\_\_\_ Period \_\_\_\_\_

**Cut out the factors below. Factor the polynomials and paste the factors into the correct space.**

Form A

1.  $x^2 + x - 2$

2.  $x^2 + 7x + 12$

3.  $x^2 - 4x + 3$

4.  $x^2 + 3x + 2$

5.  $x^2 + 5x + 4$

6.  $x^2 - 6x + 8$

7.  $x^2 - 5x + 6$

8.  $x^2 - x - 12$



(x+1)	(x-1)	(x+2)	(x-2)	(x+3)	(x-3)	(x+4)	(x-4)
(x+1)	(x-1)	(x+2)	(x-2)	(x+3)	(x-3)	(x+4)	(x-4)

Name \_\_\_\_\_ KEY \_\_\_\_\_ Period \_\_\_\_\_

**Cut out the factors below. Factor the polynomials and paste the factors into the correct space.**

Form A

1. $x^2 + x - 2$  $(x+2)(x-1)$	2. $x^2 + 7x + 12$  $(x+3)(x+4)$
3. $x^2 - 4x + 3$  $(x-3)(x-1)$	4. $x^2 + 3x + 2$  $(x+2)(x+1)$
5. $x^2 + 5x + 4$  $(x+4)(x+1)$	6. $x^2 - 6x + 8$  $(x-2)(x-4)$
7. $x^2 - 5x + 6$  $(x-3)(x-2)$	8. $x^2 - x - 12$  $(x+3)(x-4)$



$(x+1)$	$(x-1)$	$(x+2)$	$(x-2)$	$(x+3)$	$(x-3)$	$(x+4)$	$(x-4)$
$(x+1)$	$(x-1)$	$(x+2)$	$(x-2)$	$(x+3)$	$(x-3)$	$(x+4)$	$(x-4)$

•FREE•

Multiplying and  
Factoring  
Polynomials  
Matching Cards

Mrs. E Teaches Math

# Polynomials

## Matching Cards

### Helpful Hints:

- Print cards on colored cardstock. Laminate and cut out to make decks of cards. Once cards are laminated, students can write on them with dry erase markers.
- Use cards to play go fish, memory, or other types of pair and share games.
- If you print each set a different color, it is easy to identify where a missing piece belongs.
- Print the key on a bright color so you can see if a student is using it from across the room. That way, students can check their own work and you are free to help others.

### Possible Uses in the Classroom:

- Review station for test
- Enrichment for students that have completed their work
- Mid-Lesson Practice
- End of Lesson check for Understanding
- Alternative to homework
- Warmup or bellringer activity

1	2	3
$-2(x^2 + 5x - 4)$	$2x(x^2 + 5x - 4)$	$x(x + 3)$
4	5	6
$2x(3x - 4)$	$4x^2(5x - 1)$	$-4x^2(-2x + 3)$
7	8	9
$x(x^2 + 3x + 3)$	$x^2(x + 3)$	$3x(x^2 + 2x + 1)$
10	11	12
$x^2(x - 1)$	$(2x + 7)(2x^2 + 5x - 4)$	$(2x - 3)(2x^2 + x - 4)$
13	14	15
$(3x + 5)(x^2 + 6x + 11)$	$(x^2 + x + 1)(x - 1)$	$(x - 2)(3x^2 - 7x + 8)$

D	O	J
$-2x^2 - 10x + 8$	$2x^3 + 10x^2 - 8x$	$x^2 + 3x$
N	E	I
$6x^2 - 8x$	$20x^3 - 4x^2$	$8x^3 - 12x^2$
A	H	F
$x^3 + 3x^2 + 3x$	$x^3 + 3x^2$	$3x^3 + 6x^2 + 3x$
L	B	K
$x^3 - x^2$	$4x^3 + 24x^2 + 27x - 28$	$4x^3 - 4x^2 - 11x + 12$
G	M	C
$3x^3 + 23x^2 + 63x + 55$	$x^3 - 1$	$3x^3 - 13x^2 + 22x - 16$

## **Multiplying Polynomials Match Game**

### **Solutions**

<b>1 D</b>	<b>2 O</b>	<b>3 J</b>	<b>4 N</b>
<b>5 E</b>	<b>6 I</b>	<b>7 A</b>	<b>8 H</b>
<b>9 F</b>	<b>10 L</b>	<b>11 B</b>	<b>12 K</b>
<b>13 G</b>	<b>14 M</b>	<b>15 C</b>	

## **Multiplying Polynomials Match Game**

### **Solutions**

<b>1 D</b>	<b>2 O</b>	<b>3 J</b>	<b>4 N</b>
<b>5 E</b>	<b>6 I</b>	<b>7 A</b>	<b>8 H</b>
<b>9 F</b>	<b>10 L</b>	<b>11 B</b>	<b>12 K</b>
<b>13 G</b>	<b>14 M</b>	<b>15 C</b>	



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M A	$12x + 21 = 9x$ $4x + 27 = 3x$	x = -7 $-7 + 4x = 6x - 5$	B	x = -13 $9x - 5(3x - 12) = 30$ $\frac{x}{7} = 12$	E	x = 84 $x - (-4) = 4$ $-9 = 2 + x$	G L	x = -11 $-11 = x - (-15)$
A	$7x = 4x - 9$ $9(x - 4) - 7x = 5(3x - 2)$ $x = -27$	x = -3 $7 - 4x = 10x$ $x = -1$	3x - x + 15 = 41	x = 13 $x = 5$ $\frac{x}{3} - 5 = -1$	x = 18 $x = 0$ $-x = 23$	x + 4 - 3 = 6 * 5	A	x = 29 $x = -26$ $6x = -72$
T	$3(4 + 4x) = 12x + 12$ $x = -2$ $(9 - x^2)01 = (x01 - 10x) - 2(6 - 9)$	All Real Numbers $x = 0.5$	5(x - 7) = 90	x = 25 $x = 12$ $-42 = -2x$	x = 21 $x = -23$ $9(-5 - x) = -10 - 2x$	x = -5 $5 = 7 - (x - 4) - 2(4 - 7)$	N	x = -5
H I	No Solution $3x - 1 = 8$	x = 3 $x = 4$	8x - 3x = 10	x = 2 $x = 6$ $-3 + x = 12$	x = 15 $x = -9$ $25 = -35 - x$	x = -60 $x = 10$	I	x = -60

# Slope Slider

Name: \_\_\_\_\_

Visit the Web Address:

<http://www.shodor.org/interactivate/activities/slopeslider/index.html>

## Part 1: Exploring Slope

Using the mouse, select "Use Fractions"

Set the GREEN Slider at 0.

Move the PURPLE Slider to the far LEFT.

or go to <sup>①</sup><http://www.shodor.org>  
<sup>②</sup> interactive  
<sup>③</sup> Activities  
<sup>④</sup> scroll down to  
Slope Slider

Slowly move your PURPLE slider from left to right. Stop the PURPLE slider at each of following values and sketch the graph in the space provided:

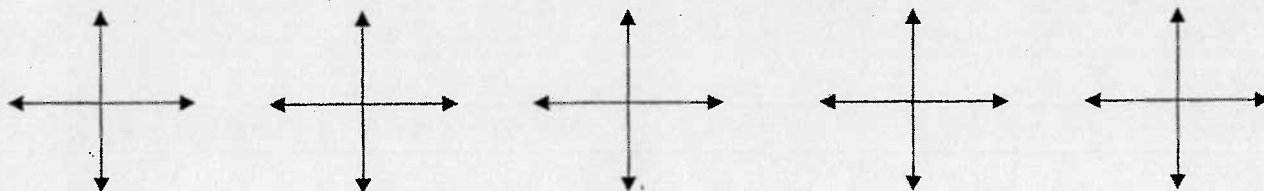
a) -4

b) -2

c) 0

d) 2

e) 4



What happens to the graph as you move the PURPLE slider from left to right?

## Questions:

1. Describe the line when the value of the PURPLE slider is negative.  
Characterize the line as increasing, decreasing, or neither.
2. Describe the line when the value of the PURPLE slider is zero.  
Characterize the line as increasing, decreasing, or neither.
3. Describe the line when the value of the PURPLE slider is positive.  
Characterize the line as increasing, decreasing, or neither.
4. What characteristics of the line does the PURPLE slider control?

**Part 2: Exploring the y-intercept**

Using the mouse, select "Use Fractions"

Set the PURPLE Slider at 1.

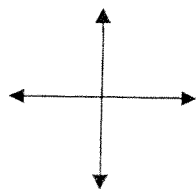
Move the GREEN Slider to the far LEFT.

Slowly move your GREEN slider from left to right. What happens to the graph as you move the GREEN slider from left to right?

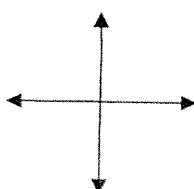
Does the GREEN slider affect the slope?

Move the GREEN slider to the following values and sketch the graph in the space provided:

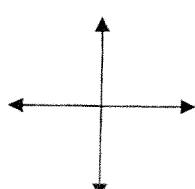
a)  $-8$



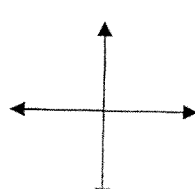
b)  $-4$



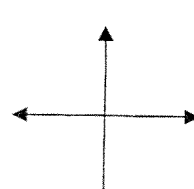
c)  $0$



d)  $4$



e)  $8$



**Question:** What characteristic of the line does the GREEN slider control?

### Part 3: Exploring $y = mx + b$

The equation  $y = mx + b$  is called slope-intercept form. Compare  $y = mx + b$  to the equation located above the sliders on the webpage.

What does the variable "m" represent in the slope intercept equation?

m = \_\_\_\_\_

What does the variable "b" represent in the slope intercept equation?

b = \_\_\_\_\_

Why do you think "slope-intercept form" is a good name for the equation  $y = mx + b$ ? Explain.

### Part 4: Using Slope-Intercept Form

Answer the following *without* the help of the computer. If needed, refer to Parts 1 & 2.

1.  $y = 4x + 5$

a. What is the slope of the line?

m = \_\_\_\_\_

b. Is the line increasing, decreasing, or neither?

\_\_\_\_\_

c. Where does the line cross the y-axis?

\_\_\_\_\_

d. Write the y-intercept as an ordered pair.

( \_\_\_\_\_ , \_\_\_\_\_ )

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

a. What is the slope of the line?

m = \_\_\_\_\_

b. Is the line increasing, decreasing, or neither?

\_\_\_\_\_

c. Where does the line cross the y-axis?

\_\_\_\_\_

d. Write the y-intercept as an ordered pair.

( \_\_\_\_\_ , \_\_\_\_\_ )

3.  $y = -3x$

a. What is the slope of the line?  $m =$  \_\_\_\_\_

b. Is the line increasing, decreasing, or neither? \_\_\_\_\_

c. Where does the line cross the y-axis? \_\_\_\_\_

d. Write the y-intercept as an ordered pair.  $( \text{ \_\_\_\_\_\_ } , \text{ \_\_\_\_\_\_ } )$

4.  $y = 5$

a. What is the slope of the line?  $m =$  \_\_\_\_\_

b. Is the line increasing, decreasing, or neither? \_\_\_\_\_

c. Where does the line cross the y-axis? \_\_\_\_\_

d. Write the y-intercept as an ordered pair.  $( \text{ \_\_\_\_\_\_ } , \text{ \_\_\_\_\_\_ } )$

e. Is this equation written in slope-intercept form? Explain.

f. What value would you enter for the PURPLE slider? \_\_\_\_\_

g. What value would you enter for the GREEN slider? \_\_\_\_\_

### Part 5: Check for Understanding and Reflection

Use the computer to check your work. Manipulate the PURPLE and GREEN sliders to check your answers in Part 4. Were you successful? Circle your results below.

#### Question #1

Part (A)



Part (B)



Part (C)



Part (D)



#### Question #2

Part (A)



Part (B)



Part (C)



Part (D)



#### Question #3

Part (A)



Part (B)



Part (C)



Part (D)



#### Question #4

Part (A)



Part (B)



Part (C)



Part (D)



Your friend was absent on the day you explored slope-intercept form,  $y = mx + b$ . Your teacher has asked you to help your friend. What sort of things should you point out?

