

**Summer Math 2018**  
**Students Entering 8<sup>th</sup> Grade**

Dear Rising 8<sup>th</sup> Grade Students and Families:

The 7<sup>th</sup> and 8<sup>th</sup> Grade math team has identified the following skills as the most critical for students as they start 8<sup>th</sup> grade. Students should work through this packet, as necessary, with the goal that they are proficient in these skills in September. This will be assessed with a T.A.Q. (Try Again Quiz) that will be given during the first half of September. Students will re-take the T.A.Q. until they demonstrate mastery of these skills by getting no more than one problem incorrect.

This packet is not a mandatory assignment, and will not be graded. However, students who enter the 8<sup>th</sup> Grade without competency in these skills will most likely struggle to keep up with the curriculum. Putting in some time over the summer to reinforce these concepts and skills will be greatly beneficial for students as they begin 8<sup>th</sup> Grade.

Sincerely,

Jesse Carson

### Solving Proportions

Solve each proportion for the missing value. Use arrows and a scale factor. Remember to reduce first, if necessary.

$$1. \frac{x}{8} = \frac{14}{4}$$

$$2. \frac{x}{3} = \frac{10}{5}$$

$$3. \frac{14}{6} = \frac{x}{15}$$

$$4. \frac{5}{1} = \frac{x}{4}$$

$$5. \frac{36}{32} = \frac{x}{8}$$

$$6. \frac{5}{30} = \frac{1}{x}$$

$$7. \frac{x}{4} = \frac{5}{10}$$

$$8. \frac{9}{2} = \frac{x}{4}$$

$$9. \frac{x}{10} = \frac{6}{4}$$

$$10. \frac{8}{12} = \frac{2}{x}$$

$$11. \frac{x}{15} = \frac{4}{6}$$

$$12. \frac{3}{18} = \frac{2}{x}$$

$$13. \frac{x}{56} = \frac{28}{32}$$

$$14. \frac{14}{6} = \frac{35}{x}$$

$$15. \frac{30}{6} = \frac{x}{10}$$

$$16. \frac{2.8}{x} = \frac{1.4}{2.7}$$

$$17. \frac{x}{20} = \frac{9}{12}$$

$$18. \frac{5}{9} = \frac{x}{63}$$

Addition and Subtraction of Integers  
Add the opposite when necessary, then solve.

1.  $24 - -32$  \_\_\_\_\_

17.  $-11 - -9$  \_\_\_\_\_

2.  $33 - -18$  \_\_\_\_\_

18.  $-26 - 43$  \_\_\_\_\_

3.  $-26 - -35$  \_\_\_\_\_

19.  $61 - -32$  \_\_\_\_\_

4.  $73 - 41$  \_\_\_\_\_

20.  $-56 - 38$  \_\_\_\_\_

5.  $32 - -74$  \_\_\_\_\_

21.  $23 - 61$  \_\_\_\_\_

6.  $-33 + -17$  \_\_\_\_\_

22.  $26 - -12$  \_\_\_\_\_

7.  $-67 - -32$  \_\_\_\_\_

23.  $-14 + -33$  \_\_\_\_\_

8.  $-62 - -15$  \_\_\_\_\_

24.  $24 + -37$  \_\_\_\_\_

9.  $42 + 44$  \_\_\_\_\_

25.  $34 + 81$  \_\_\_\_\_

10.  $-37 - -14$  \_\_\_\_\_

26.  $91 - -42$  \_\_\_\_\_

11.  $55 - -26$  \_\_\_\_\_

27.  $63 - -27$  \_\_\_\_\_

12.  $-31 + -39$  \_\_\_\_\_

28.  $-43 + -49$  \_\_\_\_\_

13.  $-71 - 54$  \_\_\_\_\_

29.  $-19 - 42$  \_\_\_\_\_

14.  $-30 - -58$  \_\_\_\_\_

30.  $-26 - -39$  \_\_\_\_\_

15.  $-27 + -93$  \_\_\_\_\_

31.  $-43 + -68$  \_\_\_\_\_

16.  $-17 - -63$  \_\_\_\_\_

32.  $24 - 71$  \_\_\_\_\_

## Solving Multi-Step Equations

On a separate sheet of paper, rewrite and solve each problem. Show all work, including checking.

1.  $3x = 4x - 7$

9.  $7x = 2x - 15$

2.  $9x = 2x + 14$

10.  $99 + 6x = -3x$

3.  $13x + 25 = 8x$

11.  $7x - 2x = 3x + 22$

4.  $17x + x = 40 - 2x$

12.  $2x - 21 = 9x + 7$

5.  $18x + 12 = 27x + 3$

13.  $15x - 8 = 31x + 24$

6.  $3(x + 5) = 8x$

14.  $5(4 - 7x) = -x - 48$

7.  $7(3 - x) + x = 5 - 2x$

15.  $5(1 + x) = 6(2 + x)$

8.  $5(x + 7) = 6(x - 5)$

16.  $6(2x + 1) = -5(3x - 15)$

- Change subtraction to add the opposite
- Distribute
- Combine Like Terms
- Add the opposite numbers
- Add the opposite letters
- Divide
- Answer in a Box
- Check:
  - Rewrite the problem
  - Substitute
  - Solve using GEMDAS, showing all steps

### Substitution

Show work on a separate sheet of paper. Rewrite each problem. Show all steps.  
Evaluate each expression using the following:

$a = 8$

$b = -9$

$c = 7$

$d = -1$

1.  $abc$

2.  $ab + cd$

3.  $ac - bd$

4.  $(bd)^2$

5.  $ad - bc - 3$

6.  $ac - 5b + 4a$

7.  $bd - 7 + b^2$

8.  $(-a)(-b) + bc$

9.  $ab + 3c - 6b$

10.  $|a| + |b| + |c|$

11.  $|a| - |b| - |c|$

12.  $5 - |ab| + |ac|$

13.  $-(a + b)$

14.  $(c + d)^2$

15.  $a - b + c - d$

16.  $-a + bc + 22$

17.  $-5c + 4bd - 3a$

18.  $cd^2$

G	Grouping Symbols
E	Exponents
M	Multiplication/division from left to right
D	
A	Addition/subtraction from left to right
S	

## Linear Relationships

Write the equation for each linear table below.

$$\text{slope} = \frac{\Delta y}{\Delta x}$$

y-int = "the start" or "the y value when x = 0"

1.

x	y
-3	4
-1	3
1	2
3	1

slope = \_\_\_\_\_

y-int = \_\_\_\_\_

$$\boxed{\phantom{00}} + \boxed{\phantom{00}}x = y$$

equation

2.

x	y
-3	3
-1	7
1	11
3	15

slope = \_\_\_\_\_

y-int = \_\_\_\_\_

$$\boxed{\phantom{00}} + \boxed{\phantom{00}}x = y$$

equation

3.

x	y
-1	0
0	1
1	2
2	3

slope = \_\_\_\_\_

y-int = \_\_\_\_\_

$$\boxed{\phantom{00}} + \boxed{\phantom{00}}x = y$$

equation

4.

x	y
1	0
2	-5
3	-10
4	-15

slope = \_\_\_\_\_

y-int = \_\_\_\_\_

$$\boxed{\phantom{00}} + \boxed{\phantom{00}}x = y$$

equation

5.

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

slope = \_\_\_\_\_

y-int = \_\_\_\_\_

$$\boxed{\phantom{00}} + \boxed{\phantom{00}}x = y$$

equation

6.

x	y
-1	-4
-2	-2
-3	0
-4	2

slope = \_\_\_\_\_

y-int = \_\_\_\_\_

$$\boxed{\phantom{00}} + \boxed{\phantom{00}}x = y$$

equation

# Linear Relationships

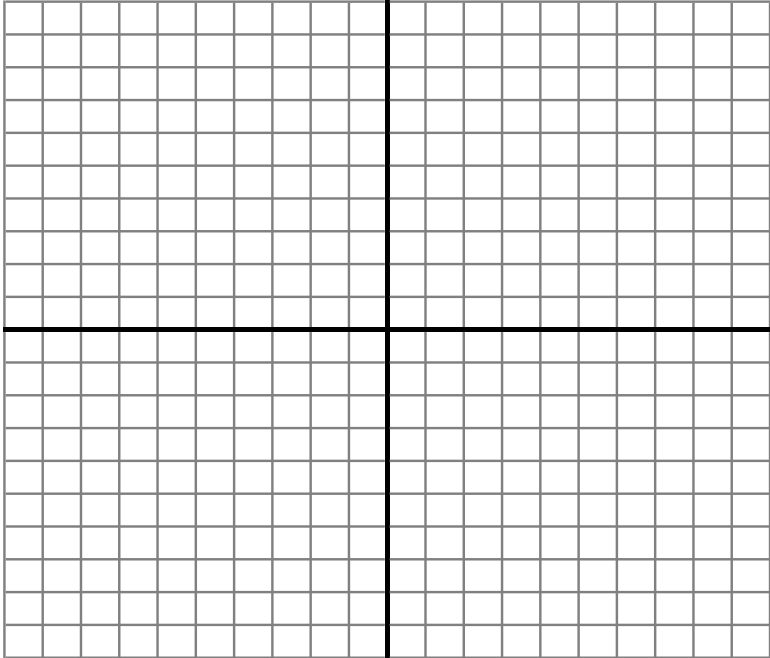
Complete the table for each equation below. Then graph the equation and find its slope and y-intercept.

1.  $y = 3x - 4$

x	y
-2	
-1	
0	
1	
2	
3	
4	

slope: \_\_\_\_\_

y-int: \_\_\_\_\_

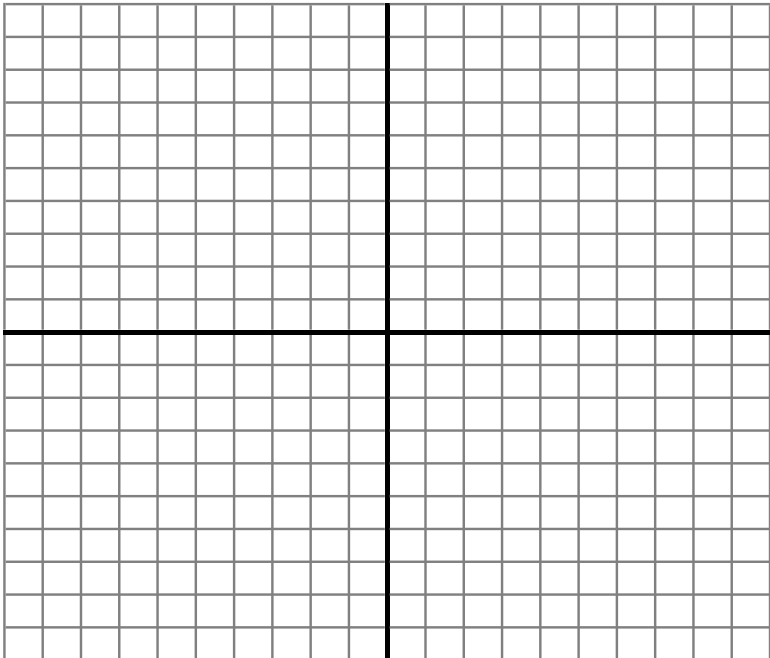


2.  $y = -2x + 1$

x	y
-2	
-1	
0	
1	
2	
3	
4	

slope: \_\_\_\_\_

y-int: \_\_\_\_\_



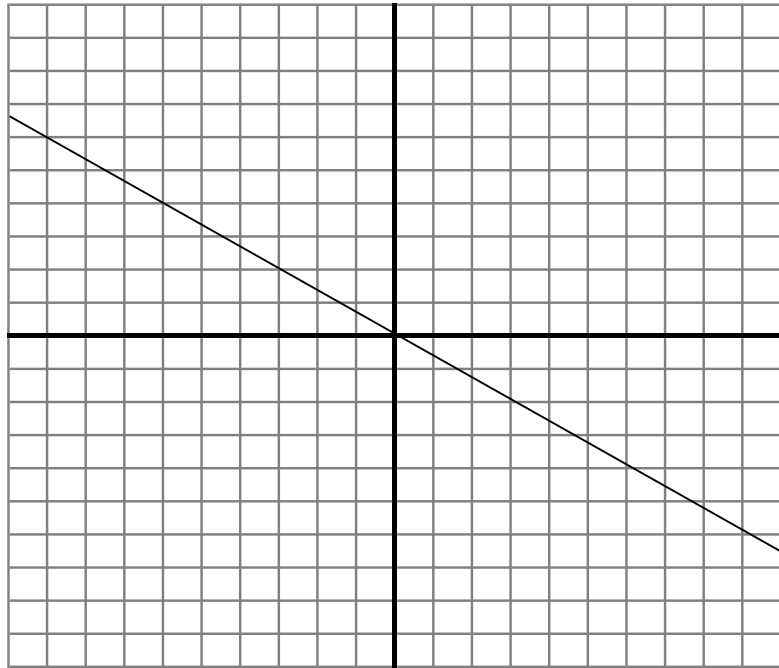
# Linear Relationships

3.  $y =$

$x$	$y$
-6	
-3	
0	
3	
6	
9	

slope: \_\_\_\_\_

$y$ -int: \_\_\_\_\_



4.  $y =$

$x$	$y$
0	-6
1	-3
2	0
3	3
4	6
5	9

slope: \_\_\_\_\_

$y$ -int: \_\_\_\_\_

