

Name: Key

Period: \_\_\_\_\_

**Study Guide  
Topic 4 Review**

**Opposites**

1) The opposite of $-4$ $4$	2) The opposite of $-\frac{2}{3}$ $\frac{2}{3}$	3) The opposite of $3.45$ $-3.45$
4) The opposite of $289$ $-289$	4) What is another word for opposite? $inverse$	5) What happens when you add a pair of opposites together? $= 0$

**Absolute Value**

1) $ -4 $ $4$	2) $ 19 $ $19$	3) $ -5.7 $ $5.7$
4) $ 1\frac{1}{2} $ $1\frac{1}{2}$	5) $ 9 - 4 $ $5$	6) $ -4 + 1 $ $1 - 3 \rightarrow 3$
7) Define absolute value:		

**Adding Rational Numbers**

<p>1) <math>-5 + (-9)</math> <math>\boxed{-14}</math></p>	<p>2) <math>-7 + 5</math> <math>\boxed{-2}</math></p>
<p>3) <math>18 + 2.5</math></p> $\begin{array}{r} 18.0 \\ + 2.5 \\ \hline 20.5 \end{array}$ $\boxed{20.5}$	<p>4) <math>-\frac{2}{3} + \frac{1}{8} (\frac{3}{3})</math></p> $\begin{array}{r} -\frac{16}{24} + \frac{3}{24} \\ \hline -\frac{13}{24} \end{array}$ $\boxed{-\frac{13}{24}}$



$$5) -2\frac{3}{4} + (-1\frac{4}{5})$$

-change to improper first

$$(-\frac{11}{4}) + (-\frac{9}{5}) (\frac{4}{4})$$

$$-\frac{55}{20} + (-\frac{36}{20})$$

$$\boxed{-\frac{91}{20}}$$

$$6) 3\frac{1}{3} + (-\frac{5}{6})$$

$$(\frac{2}{2})\frac{10}{3} + (-\frac{5}{6})$$

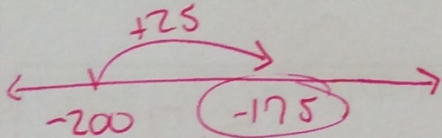
$$\frac{15 \div 3}{6 \div 3} =$$

$$\frac{20}{6} + (-\frac{5}{6})$$

$$\boxed{\frac{5}{2}}$$

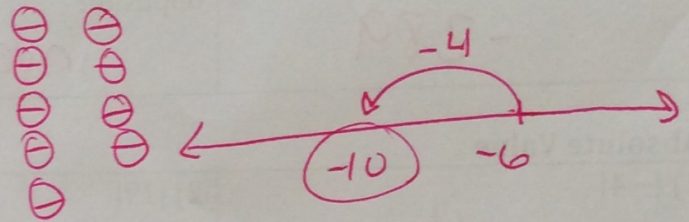
$$7) -200 + 25$$

$$\boxed{-175}$$



$$8) -6 - 4 \rightarrow -6 + (-4)$$

$$\boxed{-10}$$



$$9) -5 + (-13)$$

$$\boxed{-18}$$

$$10) 1.23 - (-2.987)$$

$$\begin{array}{r} 1.230 \\ + 2.987 \\ \hline 4.217 \end{array}$$

$$\boxed{4.217}$$

### Subtracting Rational Numbers

$$1) 19 - 34$$

$$\boxed{-15}$$

$$2) -99 - (-36)$$

$$\boxed{-63}$$

$$3) -100 - 100$$

$$-100 + (-100)$$

$$\boxed{-200}$$

$$4) -9 - 14$$

$$-9 + (-14)$$

$$\boxed{-25}$$



$$5) 8 - (-9)$$

$$\boxed{17}$$

$$6) -6 - 13$$

$$-6 + (-13)$$

$$\boxed{-19}$$

$$7) 1 - 0.5$$

$$\begin{array}{r} 0 \quad 10 \\ + 0 \quad 0 \\ - .5 \\ \hline .5 \end{array}$$

$$\boxed{.5}$$

$$8) 4\frac{1}{3} - 2\frac{5}{7} \text{ Improper First!}$$

$$\left(\frac{1}{7}\right) \frac{13}{3} - \frac{19}{7} \left(\frac{3}{3}\right)$$

$$\boxed{\frac{91}{21} - \frac{57}{21}}$$

$$\boxed{\frac{34}{21}}$$

$$9) \frac{7}{8} - 3\frac{4}{5}$$

$$\left(\frac{5}{5}\right) \frac{7}{8} - \frac{19}{5} \left(\frac{8}{8}\right)$$

$$\boxed{\frac{35}{40} - \frac{152}{40}}$$

$$\boxed{-\frac{117}{40}}$$

$$10) -\frac{1}{4} - \left(-\frac{1}{6}\right)$$

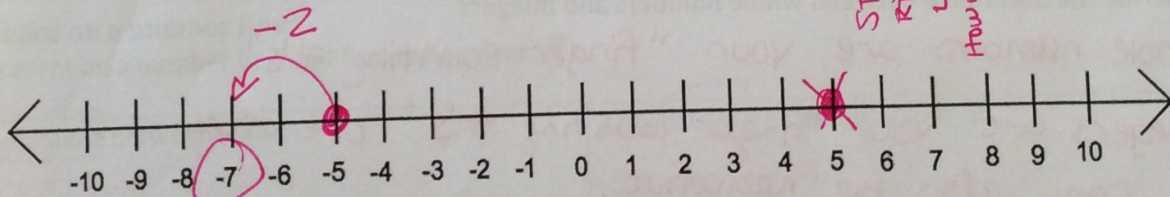
$$\left(\frac{3}{3}\right) -\frac{1}{4} + \frac{1}{6} \left(\frac{2}{2}\right)$$

$$\boxed{-\frac{3}{12} + \frac{2}{12}}$$

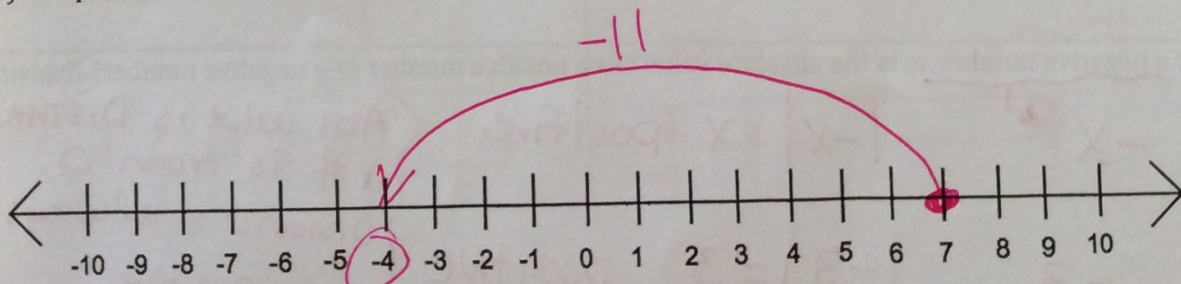
$$\boxed{-\frac{1}{12}}$$

### Graphing Equations

1) Graph the following equation on the number line below and solve:  $-5 + (-2)$

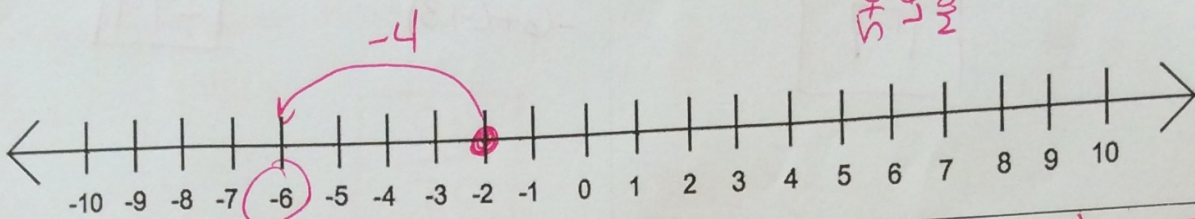


2) Graph the following equation on the number line below and solve:  $7 + (-11)$



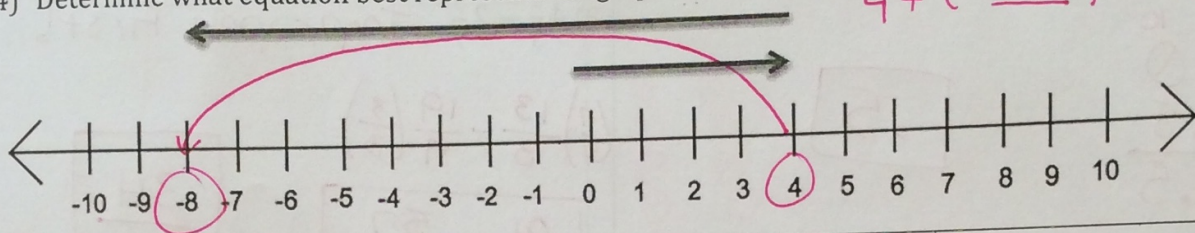


3) Graph the following equation on the number line below and solve:  $-2 - 4$



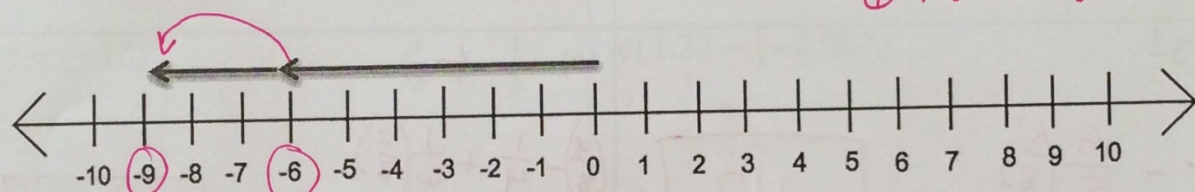
Start  
Left  
Move

4) Determine what equation best represents the graph below:



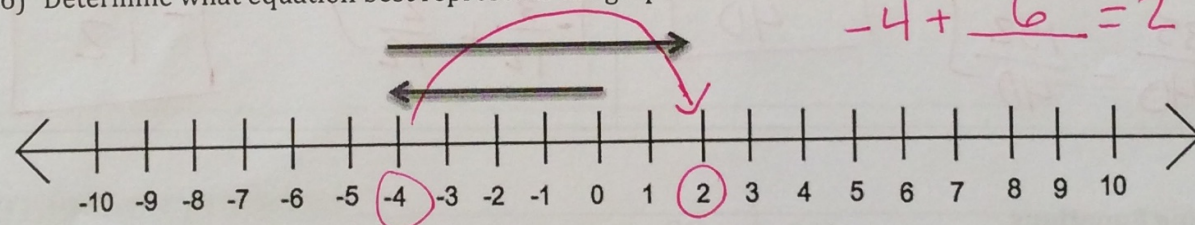
$$4 + (-12) = -8$$

5) Determine what equation best represents the graph below:



$$-6 + (-3) = -9$$

6) Determine what equation best represents the graph below:



$$-4 + 6 = 2$$

### Problem Solving

1) Describe the difference between whole numbers and integers

- Whole numbers are your "finger counting #'s"
- Integers are your "finger counting #'s" but they can also be negative.

2) For a negative number,  $x$ , is the absolute value of  $x$  a positive number or a negative number? Explain.

$-x$       $|-x| = x$  positive     { Abs value is DISTANCE a # is from 0.  
Distance = always positive.

$-3$       $|-3| = 3$  positive



3) Identify whether each statement below is true or false:

- If a number is a positive integer, then the number is a whole number. I  
 $3 = \text{integer} \ \& \ \text{whole \#}$
- If a number is negative, then its absolute value is negative. F  
 $-3 \quad |-3| \neq -3$
- If a number is positive, then its opposite is positive. F  
 $3 \rightarrow \neq 3$

4) Without actually adding, how can you tell if the sum of two numbers will be zero? Give an example.

If you are adding the same # but opposite signs. (additive inverses)

$$-3 + 3 = 0$$

5) In four plays a football team gains 3 yards, loses 7 yards, loses 2 yards, and gains 15 yards. How many yards did the team gain after four plays?

$$\begin{array}{l} +3 \checkmark \\ -7 \checkmark \\ -2 \checkmark \\ +15 \end{array}$$

$$\begin{array}{l} 3 + (-7) = -4 \\ -4 + (-2) = -6 \\ -6 + 15 = \end{array}$$

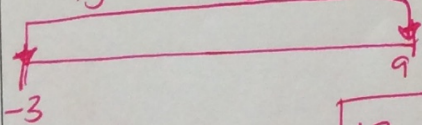
9 yds

### Distance on a number line

Represent on a number line and find the answer.

The distance between 9 and -3

- Opposite signs  
ignore sign & Add

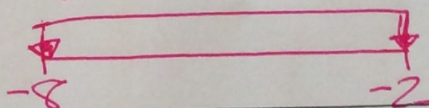


$$9 + 3 = 12 \text{ units}$$

The distance between -2 and -8

Same signs  
ignore & subtract

$$8 - 2 = 6 \text{ units}$$





Properties

Name the property or provide an expression given the property.

1)  $-4 + (-5) = -5 + (-4)$

Commutative

2)  $(54 + 62) + 28 = 54 + (62 + 28)$

ASSOCIATIVE

3)  $1 + 4 + 0 = 5$

Identity

4)  $(-2) + \underline{2} = 0$

INVERSE

5)  $9 + (-6 + 4) + 5 = 9 + -6 + (4 + 5)$

Associative

7)  $15 + 43 + 10 = 43 + 10 + 15$

COMMUTATIVE

7)  $10 + (25 + 94) = (10 + 25) + 94$

ASSOCIATIVE

8)  $1\frac{1}{4} + 0 = 1\frac{1}{4}$

Identity