### MULTIPLYING & DIVIDING INTEGERS

### Rules for Multiplying and Dividing Integers

- 1) Determine the sign on the answer first
  - If the integers have the SAME Signs: the answer is \_\_\_\_\_\_ (positive)
  - If the integers have **DIFFERENT Signs**: the answer is \_\_\_\_\_ (negative)
- 2) Determine the numeric value of the operation

Examples:

 $-2 \times 7 = -14$   $-1 \times 4 = -4$   $-12 \div 6 = -2$ 

Examples:  $3 \times 7 = -21$   $3 \times -4 = -12$   $40 \div -5 = -8$ 

Examples:  $6 \times 3 = \sqrt{8}$ 

 $28 \div 7 = 4$ 

Examples:  $-8 \times -3 = 24$   $-24 \div -6 = 4$   $-9 \div -1 = 9$ 

# WHAT WILL IT LOOK LIKE? Other Ways To Write $\mathbf x$ and $\div$

Another way to indicate multiplication of numbers in math is to use brackets () around one or more numbers.

Examples:

 $3(4) = 3 \times 4$   $(8)(-2) = 8 \times (-2)$   $-6(-7) = -6 \times (-7)$  = -16 = -16

Another way to show division of numbers in math is to write them as a fraction

Examples:

 $\frac{12}{2} = 12 \div 2 \qquad \frac{-6}{-3} = -6 \div (-3) \qquad \frac{8}{-2} = \% \div (-2)$ 

We can also put multiplication and division together this way

Examples:

 $6\left(\frac{9}{3}\right) = 6 \times (9 \div 3) \quad \frac{-16}{-4}(2) = -16 \div (-4) \times 2$ = 4 x2

Remember to do brackets first (orde of operations)

## THE INVISIBLE ONE (1)

When there is a negative sign IN FRONT of a bracket, there is an invisible "1" between the negative sign and the bracket

**Examples:** 

- (3) means 
$$-1 \times 3$$
 - (-6) means  $(-1) \times (-6)$  =  $-3$ 

This explains the rule for subtracting negatives (see yesterday's lesson)
\*\*SUBTRACTING A NEGATIVE IS LIKE ADDING A POSITIVE\*\*

Yesterday we saw that 
$$3 - (-5) = 3 \div 5$$
 this is because  $3 - (-5) = 3 - 1(-5)$  Since  $-1(-5) = 5$  = 8

#### CALCULATE

(a) 
$$(-2) \times (+5) \times (-7)$$
  
=  $(-10) \times (-7)$   
=  $70$ 

(c) 
$$(+6) \times (-5) \times (+4)$$
  
=  $(-30) \times (+4)$   
=  $(-12.0)$ 

(e) 
$$(-12)(+15)(-6)$$
  
=  $(-180)(-6)$   
=  $(-180)(-6)$ 

(g) 
$$(2)(-7)(-5)$$
  
=  $(-1+)(-5)$   
=  $70$ 

(b) 
$$(-2) \times (-3) \times (-4)$$
  
=  $(-4)$   
=  $-2+$ 

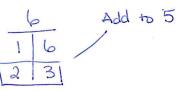
(d) 
$$(+8) \times (-2) \times (-5)$$
  
=  $(-16)(-5)$   
=  $80$ 

(f) 
$$(-10)(4)(6)$$
  
=  $(-40)(6)$   
=  $-2.40$ 

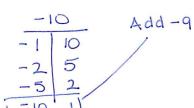
(h) 
$$(-1)(-2)(-3)(-4)$$
  
=  $(2)(-3)(-4)$   
=  $(-6)(-4)$   
=  $24$ 

Find a pair of integers that meet the following requirements

a) Multiply to 6 Add to 5



b) Multiply to -10 Add to -9



c) Multiply to 25 Add to -10

