

## 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:  $6 \times 3 = 18$        $28 \div 7 = 4$        $54 \div 9 = 6$

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

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

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

Examples:  $3(4) = 3 \times 4 = 12$        $(8)(-2) = 8 \times (-2) = -16$        $-6(-7) = -6 \times (-7) = 42$

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

Examples:  $\frac{12}{2} = 12 \div 2 = 6$        $\frac{-6}{-3} = -6 \div (-3) = 2$        $\frac{8}{-2} = 8 \div (-2) = -4$

- We can also put multiplication and division together this way

Examples:  $6\left(\frac{9}{3}\right) = 6 \times (9 \div 3) = 6 \times 3 = 18$        $\frac{-16}{-4}(2) = -16 \div (-4) \times 2 = 4 \times 2 = 8$

Remember to do brackets first (order 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:

$$-(3) \text{ means } -1 \times 3 \\ = -3$$

$$-(-6) \text{ means } (-1) \times (-6) \\ = 6$$

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

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

**CALCULATE**

(a)  $(-2) \times (+5) \times (-7)$

$= (-10) \times (-7)$

$= 70$

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

$= (6) \times (-4)$

$= -24$

(c)  $(+6) \times (-5) \times (+4)$

$= (-30) \times 4$

$= -120$

(d)  $(+8) \times (-2) \times (-5)$

$= (-16) \times (-5)$

$= 80$

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

$= (-180) \times (-6)$

$= 1080$

(f)  $(-10)(4)(6)$

$= (-40)(6)$

$= -240$

(g)  $(2)(-7)(-5)$

$= (-14) \times (-5)$

$= 70$

(h)  $(-1)(-2)(-3)(-4)$

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

$= (-6) \times (-4)$

$= 24$

Find a pair of integers that meet the following requirements

- a) Multiply to 6
- 
- Add to 5

6	
1	6
2	3

Add to 5

- b) Multiply to -10
- 
- Add to -9

-10	
-1	10
-2	5
-5	2
-10	11

Add -9

- c) Multiply to 25
- 
- Add to -10

25	
1	25
5	5
-5	-5
-1	-25

Add -10