

9-10-19

Aim: SWBAT add and subtract integers.

HW: Packet Page 12

Quiz Monday (Packet Pages 1 - 21)

Do Now: Packet Page 10

AIM: **SWBAT** add and subtract integers.

"Do Now"

1) What is the IDENTITY ELEMENT for Addition? 0 For Multiplication? 1

\* 2) What is the additive inverse of  $\frac{1}{4}$ ?  $-\frac{1}{4}$  Multiplicative inverse?  $\frac{4}{1} \rightarrow 4$   
 Simplify the following: opposite reciprocal

3)  $\boxed{-8} + \boxed{2} = -6$

4)  $\boxed{-2} + \boxed{4} = 2$

5)  $\boxed{5} - \boxed{10} = -5$

6)  $\boxed{-3} + \boxed{9} = 6$

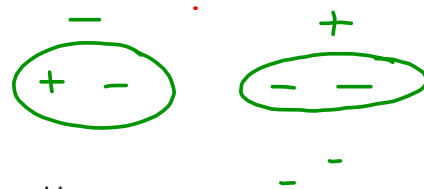
7)  $\boxed{2} - \boxed{7} = -5$

8)  $\boxed{-10} + \boxed{12} = 2$

**ADDING & SUBTRACTING INTEGERS**

I) Get rid of DOUBLE SIGNS first!

- + - becomes a NEGATIVE (so  $7 + -3$  becomes  $7 - 3$ )
- - - becomes a POSITIVE (so  $6 - -3$  becomes  $6 + 3$ )



II) BOX YOUR TERMS!

\*\* The sign IN FRONT of the number goes with the number \*\*

III) When COMBINING INTEGERS with the SAME signs

⇒ ADD the numbers and KEEP the same sign.

⇒ ADD and KEEP

Examples:

<p>A) <math>\boxed{12} + \boxed{4}</math>  <math>= 16</math>                  *Basic Addition - adding two positive numbers*</p>	<p>B) <math>-12 + -4</math>  <math>-12 - 4</math> (get rid of double signs)  <math>\boxed{-12} - \boxed{4}</math> (box terms)  <math>= -16</math> (Same Signs → Add &amp; Keep)</p>
<p>C) <math>25 - (-16)</math>  <math>\boxed{25} + \boxed{16}</math> (get rid of double signs)  <math>= 41</math>                  *Basic Addition - adding two positive numbers*</p>	<p>D) <math>-25 + -16</math>  <math>-25 - 16</math> (get rid of double signs)  <math>\boxed{-25} - \boxed{16}</math> (box terms)  <math>= -41</math> (Same Signs → Add &amp; Keep)</p>

IV) When **COMBINING INTEGERS** with **DIFFERENT** signs

⇒ **IGNORE** the signs and **SUBTRACT** numbers. Keep the sign of whatever you have more of. Subtract the absolute values. Keep the sign of the number with the largest absolute value.

⇒ **SUBTRACT** and **THINK** → the sign you have more of

<p>A) <math>12 + (-8)</math>  <math>12 - 8</math> (get rid of double signs)  <math>\boxed{12} \boxed{-8}</math> (box terms)  <math>\leftarrow 4</math> (Different Signs → Subt. &amp; Think)                  * There are more positives, so the answer is positive*</p>	<p>B) <math>-37 + 16</math>  <math>\boxed{-37} \boxed{+16}</math> (box terms)  <math>\leftarrow -21</math> (Different Signs → Subt. &amp; Think)                  * 37 has the higher absolute value, so the answer is negative*</p>
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In-Class Examples:

Same Signs ⇒ ADD + KEEP      Different Signs ⇒ SUBTRACT + THINK

1) $\boxed{12} \boxed{+20}$ all positives 32	2) $-12 + (-20)$ all negatives -32	3) $\boxed{-12} \boxed{+20}$ more positives 8
4) $12 + (-20)$ more negatives -8	5) $\boxed{-25} \boxed{+25}$ 0	6) $\boxed{-25} \boxed{-25}$ all negatives -50
7) $\boxed{-10} \boxed{+5}$ more negatives -5	8) $\boxed{-15} \boxed{+7}$ -8	9) $\boxed{-14} \boxed{+15}$ -1
10) $14 + (-8)$ 6	11) $-7 + (-18)$ -25	12) $\boxed{-12} \boxed{+5}$ -7
13) $\boxed{-3} \boxed{+2} \boxed{+4}$ 3	14) $-5 + (-7) + (-3)$ -15	15) $7 + (-2) + (-8)$ -3

\* \*\*Absolute value bars are evaluated like parenthesis. Do whatever is inside the bars first, and then find the absolute value.

16) $ -4  +  5 $ 4 + 5 9	17) $ 0 + -2 $  -2  2	18) $ 6  +  -6 $ 6 + 6 12	19) $ -4 + 0 $  -4  4
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**Homework - Adding & Subtracting Integers**

**Remember to: Get rid of Double Signs FIRST, and then Box your Terms. Next, choose your rule (Same Signs or Different Signs) and follow it.**

Same signs  $\Rightarrow$  \_\_\_\_\_Different signs  $\Rightarrow$  \_\_\_\_\_

1)  $-4 + 12$

2)  $8 + -10$

3)  $-7 + -11$

4)  $25 + -4$

5)  $-19 + -3$

6)  $-17 - (-5)$

7)  $-25 + -12$

8)  $-31 + 31$

9)  $5 + (-21)$

10)  $-3 + -17$

11)  $-20 - (-2)$

12)  $0 + -15$

13)  $-8 + 9 + -2$

14)  $-3 + 12 + -4$

15)  $16 + -9 + -7$

**Complete the statement using always, sometimes, or never.**

**Always = Always True, Sometimes = Sometimes True, Never = Never True**

Look at the examples above to help you!!!

16) The sum of two positive integers is \_\_\_\_\_ zero.

17) The sum of zero and a positive integer is \_\_\_\_\_ zero.

18) The sum of zero and a negative integer is \_\_\_\_\_ zero.

19) The sum of a positive integer and a negative integer is \_\_\_\_\_ zero.