

9-14-17

Aim: SWBAT multiply and divide integers.

HW: Packet Page 19

Quiz Monday

Do Now: Packet Page 11 # 1 - 19

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**

<p>A) $12 + -8$ $12 - 8$ (get rid of double signs) $\boxed{12} \boxed{-8}$ (box terms) $= 4$ (Different Signs → Subt. & Think) *There are more positives, so the answer is positive*</p>	<p>B) $-37 + 16$ $\boxed{-37} \boxed{+16}$ (box terms) $= -21$ (Different Signs → Subt. & 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) $\boxed{12} \boxed{+20}$ $\frac{12}{+20}$
32 | 2) $\boxed{-12} \boxed{+20}$ $\frac{12}{+20}$
-32 | 3) $\boxed{-12} \boxed{+20}$ $\frac{20}{-12}$
8 |
| 4) $\boxed{12} \boxed{-20}$ $\frac{20}{-12}$
-8 | 5) $\boxed{-25} \boxed{+25}$ $\frac{25}{-25}$
0 | 6) $\boxed{-25} \boxed{-25}$ $\frac{25}{+25}$
-50 |
| 7) $\boxed{-10} \boxed{+5}$ $\frac{10}{-5}$
-5 | 8) $\boxed{-15} \boxed{+7}$ $\frac{15}{-7}$
-8 | 9) $\boxed{-14} \boxed{-15}$ $\frac{14}{+15}$
-29 |
| 10) $\boxed{14} \boxed{-8}$ $\frac{14}{-8}$
6 | 11) $\boxed{-7} \boxed{-18}$ $\frac{18}{+7}$
-25 | 12) $\boxed{-12} \boxed{+5}$ $\frac{12}{-5}$
-7 |
| 13) $\boxed{-3} \boxed{+2} \boxed{+4}$
3 | 14) $\boxed{-5} \boxed{+7} \boxed{-3}$ $\frac{15}{+7}$
-5 | 15) $\boxed{7} \boxed{-2} \boxed{-8}$ $\frac{8}{-2}$
-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 $
 0 - 2
 -2
2 | 18) $ 6 + -6 $
6 + 6
12 | 19) $ -4 + 0 $
 -4
4 |
|--------------------------------|---------------------------------------|---------------------------------|-----------------------------|

(30) $-2y - 3y + 6x - 9x$
 $-3x - 5y$

Class Work (Finish for Homework)

- 1) What is the additive inverse of 19? -19
- 2) What is the opposite of -24? 24
- 3) How many numbers have an absolute value of 12? 2 List them. 12 or -12
- 4) The counting numbers are 0, 1, 2, 3,
- 5) The whole numbers are ALL the counting #s and zero.
- 6) The integers are ALL the whole #s and their opposites.

For 7-12 state whether each of the following is TRUE or FALSE.

- 7) One-half is **not** an integer. True
- 8) If x is a positive integer, then $x > 0$ True
- 9) If x is a negative integer, then $x < 0$ True
- 10) A whole number is an integer. True 11) An integer is a whole number. False
- 12) Zero is a positive integer. False

Simplify each expression.

REMEMBER - BOX OFF YOUR TERMS AND FOLLOW THE RULES.

BEWARE OF DOUBLE NEGATIVES!

Same signs \Rightarrow Add & keep

Different signs \Rightarrow subtract + think

$$13) \begin{array}{l} \boxed{-21 + 7} \\ -14 \end{array} \quad \begin{array}{l} 21 \\ -7 \\ \hline \end{array}$$

$$14) \begin{array}{l} -29 + \overline{-15} \\ \boxed{-29 - 15} \\ -44 \end{array} \quad \begin{array}{l} 29 \\ +15 \\ \hline \end{array}$$

$$15) \begin{array}{l} -20 + 8 + 22 + \overline{-10} \\ \boxed{-20 + 8 + 22 - 10} \\ 0 \end{array}$$

$$16) \begin{array}{l} 5 + \overline{-7} \\ \boxed{5 - 7} \\ -2 \end{array} \quad \begin{array}{l} 7 \\ -5 \\ \hline \end{array}$$

$$17) \begin{array}{l} \boxed{65 - 72} \\ -7 \end{array} \quad \begin{array}{l} 72 \\ -65 \\ \hline \end{array}$$

$$18) \begin{array}{l} -85 + \overline{-42} \\ \boxed{-85 + 42} \\ -43 \end{array}$$

19) $\boxed{-32} - \boxed{74}$ $\frac{32}{+74}$
 -106

20) $\boxed{15} - \boxed{21}$ $\frac{21}{-15}$
 -6

21) $\boxed{-39} + \boxed{25} + \boxed{65}$
 51

22) $-38 + -19 + -3$
 $\boxed{-38} \boxed{-19} \boxed{-3}$
 -60

23) $24 + -19 + 12$
 $\boxed{24} \boxed{+19} \boxed{+12}$
 55

24) $\boxed{-11} + \boxed{10} - \boxed{7} + \boxed{9}$
 1

25) $5x + -21x$
 $\boxed{5x} - \boxed{21x}$ $\frac{21}{-5}$
 $-16x$

26) $-3x + -17x$ $\frac{17}{+3}$
 $\boxed{-3x} - \boxed{17x}$
 $-20x$

27) $\boxed{-3x} + \boxed{12x} - \boxed{14x}$
 $-5x$

28) $\boxed{-18y} - \boxed{37y}$ $\frac{18}{+37}$
 $-55y$

29) $11y + -27y$
 $\boxed{11y} + \boxed{27y}$
 $38y$

30) $\boxed{-2y} - \boxed{3y} + \boxed{6x} - \boxed{9x}$
 $-3x - 5y$
 ↖ alphabetical order

* 31) $-52a + -17b + 13a + -5b$
 $\boxed{-52a} \boxed{+17b} \boxed{+13a} \boxed{+5b}$

$-39a + 22b$
 alphabetical order

32) $47x + -15x + 6x - 10x$
 $\boxed{47x} - \boxed{15x} \boxed{+6x} - \boxed{10x}$
 $28x$

33) $\boxed{-50x} - \boxed{10x} - \boxed{18y} + \boxed{100y}$
 $-60x + 82y$

$\frac{52}{-13}$

Division 3 ways

$$7 \overline{)28}$$

$$28 \div 7$$

$$\frac{28}{7}$$

$$3 \overline{)5}$$

$$5 \div 3$$

$$\frac{5}{3}$$

Do the problems 5 divided by zero and zero divided by five make the same answer?

$$0 \overline{)5}$$

(Zero vs. undefined)

undefined

$$5 \div 0$$

$$\frac{5}{0}$$

$$5 \overline{)0}$$

$$0 \div 5$$

$$\frac{0}{5}$$

- Zero in the num. $\rightarrow 0$
- Zero in den. \rightarrow undefined

AIM: SWBAT multiply and divide integers.

When **MULTIPLYING** and **DIVIDING TWO** integers with:

I) **TWO SAME SIGNS** your answer will be **POSITIVE**.

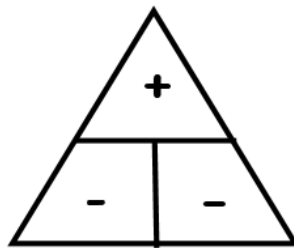
Ex: $5 \cdot 4 = 20$ AND $-5 \cdot -4 = 20$ $18 \div 3 = 6$ AND $-18 \div -3 = 6$

II) **TWO DIFFERENT SIGNS** your answer will be **NEGATIVE**.

Ex: $-9 \cdot 2 = -18$ AND $9 \cdot -2 = -18$ $-18 \div 9 = -2$ AND $18 \div -9 = -2$

You can also use the diagram below to help you choose your sign . . .

Cover the two signs you have, the sign that is remaining is the sign of your answer.



Evaluate.

1) $(-10)(-5)$
50

2) $-12 \cdot -4$
48

3) $(-4)(2)$
-8

4) $7 \cdot -9$
-63

5) $(100)(-7)$
-700

6) $-6 \cdot 13$
-78

7) $-9 \cdot -11$
99

8) $(-15)(7)$
-105

Top #
in the box $12 \overline{)144}$

9) $-\frac{144}{12}$
-12

10) $62 \div 2$
31

11) $-\frac{150}{-30}$
5

12) $-90 \div -15$
6

13) $-51 \div 3$
-17

14) $\frac{-9}{-3}$
3

15) $-120 \div 6$
-20

16) $\frac{80}{-5}$
-16

Homework - Multiplying & Dividing Integers

1) $4 \cdot -9$

2) $-5(-7)$

3) $-12(0)$

4) $\frac{-64}{-8}$

5) $\frac{-32}{4}$

6) $\frac{50}{-10}$

7) $-9(-11)$

8) $-12(8)$

9) $-13 \cdot -20$

10) $\frac{0}{29}$

11) $\frac{65}{0}$

12) $\frac{-36}{3}$

13) $-17(18)$

14) $-4(-9)(8)$

15) $6(-5)(7)$

16) $\frac{30}{-15}$

17) $\frac{56}{-7}$

18) $\frac{-36}{4}$

19) $-9(-8)(-11)$

20) $42(-3)(0)$

21) $-5(-7)(-13)$

22) $\frac{-48}{-6}$

23) $\frac{42}{-2}$

24) $\frac{-60}{-12}$

Find the mean of the data: To find the mean of a set of data, you first add up all the numbers, and then divide your sum by the number of elements)

25) 8, 5, -4, 9, -3, 11, 2

26) -16, 2, -18, 4, -11, -8, -6, 5