

9-9-19

Aim: SWBAT define and identify properties of addition and multiplication.

HW: Memorize Properties

Do Now: Seating Chart

HOMWORK - Properties & Introduction to Adding Integers

State the name of the property that is shown.

- |                                                    |                               |
|----------------------------------------------------|-------------------------------|
| 1) $(x + 9) + 1 = x + (9 + 1)$                     | 1) <u>Associative, +</u>      |
| 2) $1 \cdot x = x$                                 | 2) <u>Identity, \cdot</u>     |
| 3) $(2 + 3) + 5 = 2 + (3 + 5)$                     | 3) <u>Associative, +</u>      |
| * 4) $(12 + 9) + 15 = (9 + 12) + 15$               | 4) <u>Commutative, +</u>      |
| 5) $(2 + 7) \cdot 0 = 0$                           | 5) <u>Multiplicative, 0</u>   |
| 6) $12 \cdot (7 \cdot 15) = (12 \cdot 7) \cdot 15$ | 6) <u>Associative, \cdot</u>  |
| 7) $0 + (9 + 1) = 9 + 1$                           | 7) <u>Identity, +</u>         |
| 8) $3(4x + 9) = 12x + 27$                          | 8) <u>Distributive</u>        |
| 9) $r \cdot 1 = r$                                 | 9) <u>Identity, \cdot</u>     |
| 10) $(8 \cdot 6) \cdot 9 = 8 \cdot (6 \cdot 9)$    | 10) <u>Associative, \cdot</u> |
| 11) $106 \cdot 0 = 0$                              | 11) <u>Multiplicative, 0</u>  |
| 12) $4(a + b) = 4a + 4b$                           | 12) <u>Distributive</u>       |
| 13) $-y + y = 0$                                   | 13) <u>Inverse, +</u>         |
| * 14) $(2 + y) + 8 = 8 + (2 + y)$                  | 14) <u>Commutative, +</u>     |
| 15) $c \cdot \frac{1}{c} = 1$                      | 15) <u>Inverse, \cdot</u>     |
| * 16) $(8 \cdot 6) + 9 = (6 \cdot 8) + 9$          | 16) <u>Commutative, \cdot</u> |

Diff. signs  
17)  $\boxed{-11} + \boxed{32} = \underline{21}$

$$\begin{array}{r} 32 \\ -11 \\ \hline 21 \end{array}$$

18)  $8 + \overset{-}{8} = \underline{0}$

$$\begin{array}{r} \boxed{8} - \boxed{8} \\ \hline 8 \\ -8 \\ \hline 0 \end{array}$$

Same signs  
19)  $\boxed{-78} - \boxed{15} = \underline{-93}$

$$\begin{array}{r} 78 \\ + 15 \\ \hline 93 \end{array}$$

Diff. signs  
20)  $\boxed{-25} + \boxed{20} = \underline{-5}$

$$\begin{array}{r} 25 \\ -20 \\ \hline 5 \end{array}$$

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Name the property for each of the following:

- 1)  $(13 + 7) + 8 = 13 + (7 + 8)$  \_\_\_\_\_
- 2)  $0 \cdot (x + 3) = 0$  \_\_\_\_\_
- 3)  $9 \cdot 5 = 5 \cdot 9$  \_\_\_\_\_
- 4)  $(62 + 3) + 0 = (62 + 3)$  \_\_\_\_\_
- 5)  $2(4x + 9) = 8x + 18$  \_\_\_\_\_
- 6)  $(19 + 8) + 6 = (8 + 19) + 6$  \_\_\_\_\_
- 7)  $(2 \cdot 3) \cdot 7 = 2 \cdot (3 \cdot 7)$  \_\_\_\_\_
- 8)  $56 \cdot 1 = 56$  \_\_\_\_\_
- 9)  $2x + 6y = 2(x + 3y)$  \_\_\_\_\_
- 10)  $7 \cdot \frac{1}{7} = 1$  \_\_\_\_\_
- 11)  $-6 + (3 \cdot 8) = -6 + (8 \cdot 3)$  \_\_\_\_\_
- 12)  $-15 + 15 = 0$  \_\_\_\_\_

Adding Integers

Adding integers means adding with both positive and negative numbers (the whole numbers and their opposites). Before we discuss any rules about adding integers, let's explore . . .

Let's look at some examples together:

*Diff. signs → subtract*

- 1)  $\boxed{-2+2} = 0$
- 2)  $\boxed{-4+0} = -4$
- 3)  $\boxed{-5+5} = 0$
- 4)  $\boxed{-2+5} = 3$
- 5)  $\boxed{-5+2} = -3$
- 6)  $-2\overset{-}{+}5 =$  \_\_\_\_\_
- 7)  $-2 + 3 =$  \_\_\_\_\_
- 8)  $2\overset{-}{+}3 =$  \_\_\_\_\_
- 9)  $-2\overset{-}{+}3 =$  \_\_\_\_\_
- 10)  $-6 + 1 =$  \_\_\_\_\_
- 11)  $-1 + 6 =$  \_\_\_\_\_
- 12)  $-6\overset{-}{+}1 =$  \_\_\_\_\_

$5\overset{+}{(-3)}$

$8\overset{+}{(-3)}$