

9-13-17

Aim: SWBAT compare integers and find the absolute value of a number.

HW: Textbook Pg. 59 # 1 - 20

**MAKE SURE THE PROBLEMS FROM THE BOOK ARE COPIED ONTO YOUR PAPER AND THEN ANSWERED!**

Do Now: Compare using  $<$  or  $>$ .

a)  $-4 > -12$    b)  $-16 < -1$    c)  $0 > -25$    d)  $13 > -13$

"Neg. 4 is greater than neg. 12."

Lefty makes less than  
 $<$

## HOMEWORK - Properties &amp; Introduction to Adding Integers

State the name of the property that is shown.

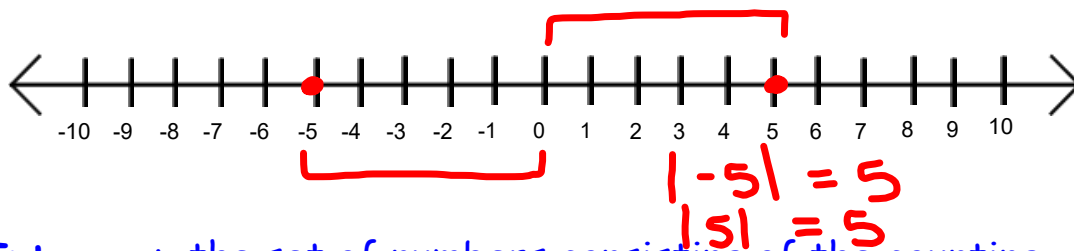
- |  |                               |
|--|-------------------------------|
| 1) $(x + 9) + 1 = x + (9 + 1)$                     | 1) <u>Associative, +</u>      |
| 2) $1 \cdot x = x$                                 | 2) <u>Identity, \cdot</u>     |
| 3) $(2 + 3) + 5 = 2 + (3 + 5)$                     | 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> |

17)  $-11 + 32 = \underline{\quad}$     18)  $8 + -8 = \underline{\quad}$     19)  $-78 - 15 = \underline{\quad}$     20)  $-25 + 20 = \underline{\quad}$

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Pg. 3

(-4))



**Integers:** the set of numbers consisting of the counting numbers (1, 2, 3, ...), their opposites (-1, -2, -3, ...), and zero.

\*\*\*\*\*A negative sign does not automatically make a number an integer.

**no parts**  
Examples of Integers

-11, -20, -21  
11,  $+\frac{6}{3} = 2$ , 73.0

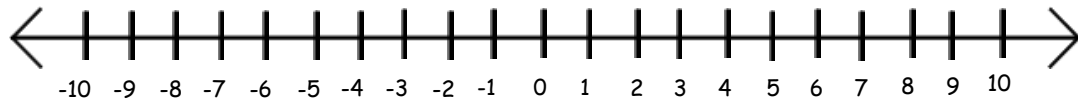
These numbers have no parts.

**have parts**  
Examples of non-Integers

-5.5,  $\frac{5}{3}$ ,  $-\frac{1}{4}$

These numbers have parts.

..



lefty  
makes less  
than

Comparing integers using  $<$  or  $>$ .

$$15 < 25$$

$$92 > 63$$

$$0 < 12$$

"15 is less than 25"

"92 is greater than 63"

"0 is less than 12"

$$-5 < 0$$

$$-5 > -18$$

$$5 > -5$$

"-5 is less than 0"

"-5 is greater than -18"

"5 is greater than -5"

- A positive is always bigger than a negative.
- A positive is always bigger than 0.
- Zero is always bigger than a negative.
- A number on the right is always bigger than a number on the left. (# line)

Ordering integers from least to greatest.

-5, -9, 0, -3

-9, -5, -3, 0

-2, 7, -5, -1

-5, -2, -1, 7

**Commonly asked questions**

Name a number that is not an integer.

$\frac{1}{3}$ ,  $-7.2$

What is the largest negative integer?

$-1$

What is the smallest positive integer?

$1$

**Opposite (additive inverse):** the result of taking a number and changing its sign.

*additive inverse is fancy for opposite*

- A number and its opposite are equidistant from zero on the number line, but on opposite sides of zero.
- A number and its opposite sum to zero

*Distance is always positive.*

**Absolute Value:** the distance from 0 to a number,  $n$ , on the number line

$$|5| = 5 \quad |-5| = 5$$

Both a number and its additive inverse have the same absolute value.

Evaluate each absolute value.

$$\begin{array}{l} |10 + 3| \\ \checkmark \\ |13| \\ 13 \end{array}$$

$$\begin{array}{l} |10| + |3| \\ \checkmark \quad \checkmark \\ 10 + 3 \\ 13 \end{array}$$

$$\begin{array}{l} |-10| + |-3| \\ \checkmark \quad \checkmark \\ 10 + 3 \\ 13 \end{array}$$