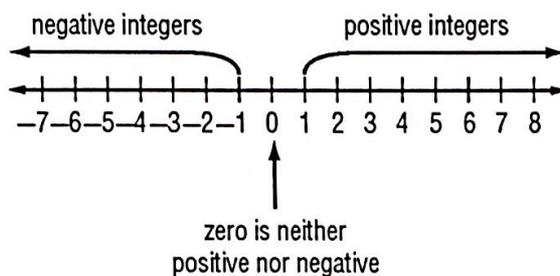


# Integers and Absolute Value

## Lesson 3-1

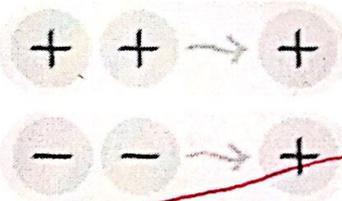
Integers less than zero are negative integers. Integers greater than zero are positive integers.



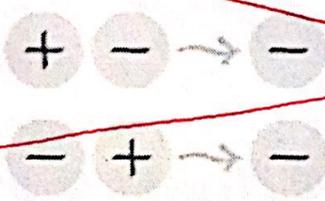
The absolute value of an integer is the *distance the number is from zero* on a number line. Two vertical bars are used to represent absolute value. The symbol for absolute value of 3 is  $|3|$ .

### Integer Sign Rules Reference

"Like Signs"



"Unlike Signs"



\*If 2 signs are next to each other with NO number in between, the signs BATTLE! Use the Sign Rules for a Reference.

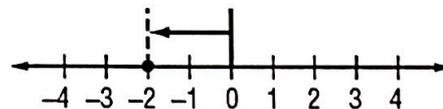
*\*NOT For Absolute Value!*

### Example 1)

a) Write an integer that represents 160 feet below sea level.  $-160$

b) A profit of \$53  $+ \$53$

### Example 2) Evaluate $|-2|$ .

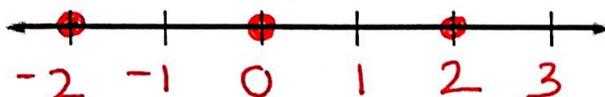


$-2$  is 2 spaces away from 0. So,  $|-2| = 2$

### Example 3) Evaluate $|-3| + |-4|$

$$\begin{array}{c} \downarrow \quad \downarrow \\ 3 + 4 = 7 \end{array}$$

### Example 4) Graph the set of integers on a number line. $\{-2, 0, 2\}$



PRACTICE! Write an integer for each situation.

1. seven degrees below zero

$$-7$$

2. a loss of 3 pounds

$$-3$$

3. a loss of 20 yards

$$-20$$

4. a profit of \$25

$$+\$25$$

5. 112°F above 0

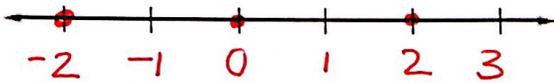
$$+112^{\circ}\text{F}$$

6. 2,830 feet above sea level

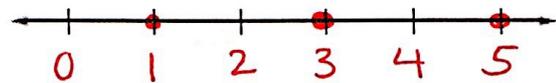
$$+2,830$$

Graph each set of integers on a number line.

$$7. \{-2, 0, 2\} \rightarrow \{-2, 0, 2\}$$



$$8. \{1, 3, 5\} \rightarrow \{1, 3, 5\}$$



$$9. \{-2, -5, 3\} \rightarrow \{-5, -2, 3\} \swarrow$$

least to greatest



$$10. \{7, -1, 4\} \rightarrow \{-1, 4, 7\}$$



Evaluate each expression.

$$11. |1| \quad \boxed{1}$$

$$12. |-8| \quad \boxed{8}$$

$$13. |0| \quad \boxed{0}$$

$$14. |-82| \quad \boxed{82}$$

$$15. |64| \quad \boxed{64}$$

$$16. |-128| \quad \boxed{128}$$

$$17. |-22| + 5$$

$$\downarrow$$

$$22 + 5 = \boxed{27}$$

$$18. |-40| - 8$$

$$\downarrow$$

$$40 - 8 = \boxed{32}$$

$$19. |-18| + |10|$$

$$\downarrow$$

$$18 + 10 = \boxed{28}$$

$$20. |-7| + |-1|$$

$$\downarrow \quad \downarrow$$

$$7 + 1 = \boxed{8}$$

$$21. |98| - |-5|$$

$$\downarrow \quad \downarrow$$

$$98 - 5 = \boxed{93}$$

$$22. |-49| - |-10|$$

$$\downarrow \quad \downarrow$$

$$49 - 10 = \boxed{39}$$