

# 11.1 – Integers and Absolute Value

Complete the statement using  $<$ ,  $>$ , or  $=$ .

- 1)  $|-23|$  ? 23                      2)  $|-142|$  ?  $|-157|$                       3)  $-|-78|$  ? 52
- 4) You and your friend are swimming against the current. You move forward 15 feet. Your friend is not a strong swimmer, so he moves back 6 feet. Write each amount as an integer.
- 5) 14,  $|-25|$ ,  $-|-34|$ , 28,  $|0|$                       6)  $|-16|$ , 10,  $|25|$ ,  $-16$ ,  $|-43|$

Simplify the expression.

- 7)  $|-249|$                       8)  $-|183|$                       9)  $-|-153|$
- 10) The boiling point of a liquid is the temperature at which the vapor pressure of the liquid equals the environmental pressure surrounding the liquid.

Substance	Hydrogen	Oxygen	Iodine	Phosphorus
Boiling Point ( $^{\circ}\text{C}$ )	-253	-183	184	280

- a) Which substance in the table has the highest boiling point?
- b) Is the boiling point of oxygen or iodine closer to  $0^{\circ}\text{C}$ ?
- 11) You are riding on a rollercoaster.
- a) Your velocity is 13 feet per second. Are you moving up or moving down?
- b) What is your speed in part (a)? Give the units.
- c) Your velocity is feet per second. Are you moving up or moving down?
- d) What is your speed in part (c)? Give the units.

- 12) There is one integer for which there does not exist another integer with the same absolute value. What is that integer?

Determine whether the statement is *true* or *false*. Explain your reasoning.

- 13) The absolute value of 3 above sea level is the same as the absolute value of 3 below sea level.

- 14) If  $x < 0$ , then  $|x| < x$ .

## What Can You Serve, But Never Eat?

Write the letter of each answer in the box containing the exercise number.

**Find the absolute value.**

1.  $|12|$

2.  $|-9|$

3.  $|20|$

4.  $|-10|$

**Complete the statement using  $<$ ,  $>$ , or  $=$ .**

5.  $3 \underline{\quad ? \quad} |-8|$

6.  $4 \underline{\quad ? \quad} |-4|$

7.  $|-6| \underline{\quad ? \quad} -6$

**Simplify the expression.**

8.  $-|-13|$

9.  $|-55|$

10.  $-|2|$

11. A fishfinder is an instrument on a boat that indicates where fish are located. Are the fish closest to the surface of the water at  $-20$  feet or  $-30$  feet?

### Answers

**S.** 10                      **B.**  $-13$

**E.**  $-2$                       **T.** 20

**G.**  $-55$                       **A.** 9

**I.** 12                      **F.** 2

**S.**  $-20$                       **B.**  $-9$

**H.**  $-12$                       **D.** 13

**L.** 55                      **R.**  $-10$

**A.**  $<$                       **N.**  $>$

**L.**  $=$                       **N.**  $-20$  feet

**P.**  $-30$  feet

5		3	10	11	7	1	4		8	2	9	6
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