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Practice quiz on the Number Line, including Inequalities

TOTAL POINTS 8

1. Which of the following real numbers is ***not*** an integer? **1 / 1 point**

- (•) 4.3
- ( ) -3
- ( ) 7
- ( ) 0

Correct
4.3 is a decimal that is between two consecutive integers (4 and 5).

2. Which of the following is the absolute value $|-7|$ of the number -7? **1 / 1 point**

- ( ) -7
- ( ) 0
- ( ) 1
- (•) 7

Correct
The absolute value of a number x is the distance along the number line from x to 0. In this case, -7 is 7 units away from 0, and so $|-7| = 7$.

3. Suppose I tell you that x and y are two real numbers which make the statement $x < y$ true. Which pair of numbers ***cannot*** be values for x and y? **1 / 1 point**

- ( ) $x = -1$ and $y = 0$
- ( ) $x = 1$ and $y = 7.3$
- ( ) $x = -17.3$ and $y = -17.1$
- (•) $x = 5$ and $y = 3.3$

Correct
The statement $x < y$ means that x is to the left of y on the real number line. Since 5 is to the right of 3.3, these cannot be values for x and y.

4. Suppose I tell you that w is a real number which makes both of the following statements true: $w > 1$ and $w < 1.2$. Which of the following numbers could be w? **1 / 1 point**

- ( ) $w = 1.2$
- ( ) $w = 0$
- (•) $w = 1.05$
- ( ) $w = 11$

Correct
$1.05 > 1$ is true since 1.05 is to the right of 1 on the real number line, and $1.05 < 1.2$ is also true, since 1.05 is to the left of 1.2 on the real number line.

5. Suppose that x and y are two real numbers which satisfy $x + 3 = 4y + 1$. **Which of the following statements are false?** **1 / 1 point**

- (•) $x = 4y$
- ( ) $2x + 6 = 8y + 2$

- $x + 2 = 4y$
- $x = 4y - 2$

Correct
The equation $x = 4y$ cannot be derived from the given equation.

6. Which of the following real numbers is in the open interval $(2, 3)$? **1 / 1 point**

- 2.1
- 2
- 3
- 1

Correct
Recall that the open interval $(2, 3)$ consists of all real numbers x which satisfy $2 < x < 3$. Since $2.1 > 2$ and $2.1 < 3$, the number 2.1 is in this open interval.

7. Which of the following real numbers are in the open ray $(3.1, \infty)$? **1 / 1 point**

- 0
- 3.1
- 4.75
- -5

Correct
Recall that $(3.1, \infty) = \{x \in \mathbb{R} | \ x > 3.1\}$. Since $4.75 > 3.1$ is true, $4.75 \in (3.1, \infty)$.

8. Which of the following values for x solves the equation $-3x + 2 = -4$ **1 / 1 point**

- All values of x such that $x \leq 2$
- $x = 2$
- $x = \frac{2}{3}$
- $x = -2$

Correct
First we subtract 2 from both sides of the given equation, to obtain $-3x = -6$. Finally, to isolate x we divide both sides of the equation by -3 to obtain $x = 2$.