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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

- ☐ -3
☒ 4.3
☐ 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

- ☐ 0
☐ 1
☐ -7
☒ 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

- ☐ $x = -17.3$ and $y = -17.1$
☐ $x = -1$ and $y = 0$
☐ $x = 1$ and $y = 7.3$
☒ $x = 5$ 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

- ☐ $w = 1.2$
☒ $w = 1.05$
☐ $w = 0$
☐ $w = 11$

✓ **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

- ☒ $x = 4y$
☐ $x = 4y - 2$
☐ $x + 2 = 4y$
☐ $2x + 6 = 8y + 2$

✓ **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
☐ 3
☒ 2.1

✓ **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 $(3.1, \infty) = \{x \in \mathbb{R} \mid x > 3.1\}$. 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 $x \leq 2$
☒ $x = 2$
☐ $x = -2$
☐ $x = \frac{2}{3}$

✓ **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 $x = 2$.