



✓ **Congratulations! You passed!**

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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

- ☐ 0
- ☒ 4.3
- ☐ -3
- ☐ 7

✓ **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
- ☒ 7
- ☐ 0
- ☐ 1

✓ **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  $y = 0$
- ☒  $x = 5$  and  $y = 3.3$
- ☐  $x = 1$  and  $y = 7.3$

✓ **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

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

✓ **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

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

✓ **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

- ☐ 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

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

✓ 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  $x = 2$ .