

Review Exercise Set 1

Exercise 1: Determine which of the following numbers are (a.) integers, (b.) rational numbers, and (c.) irrational numbers.

$$-\frac{3}{5}, 5, \pi, \sqrt{26}, 3.\overline{66}, \frac{\sqrt{3}}{2}, 4.12873\dots, -2$$

Exercise 2: Let $x = \{-5, -2, -1, 3, 4, 7\}$. Find $-|x|$.

Exercise 3: If $A = \{-9, 0, 6\}$ and $B = \{2, 4, 6, 8\}$ then find $A \cup B$.

Exercise 4: If $A = \{-9, 0, 6\}$ and $B = \{2, 4, 6, 8\}$ then find $A \cap B$.

Exercise 5: Graph $\{x \mid -2 < x < 3\}$ on a number line.

Review Exercise Set 1 Answer Key

Exercise 1: Determine which of the following numbers are (a.) integers, (b.) rational numbers, and (c.) irrational numbers.

$$-\frac{3}{5}, 5, \pi, \sqrt{26}, 3.\overline{66}, \frac{\sqrt{3}}{2}, 4.12873\dots, -2$$

Integers: -2 and 5

Integers are the positive and negative whole numbers as well as zero.

Rational numbers: $-2, -\frac{3}{5}, 3.\overline{66}, 5$

A rational number is one that can be written in the form of a fraction a/b , where a and b are integers and b is not zero. Rational numbers also have either a terminating or repeating decimal representation.

Irrational numbers: $\pi, \sqrt{26}, 4.12873\dots, \frac{\sqrt{3}}{2}$

An irrational number is one that cannot be written in a/b form, where a and b are integers and b is not zero. Irrational numbers also have a nonterminating and nonrepeating decimal representation.

Exercise 2: Let $x = \{-5, -2, -1, 3, 4, 7\}$. Find $-|x|$.

$$x = \{-5, -2, -1, 3, 4, 7\}$$

$$|x| = \{1, 2, 3, 4, 5, 7\}$$

$$-|x| = \{-7, -5, -4, -3, -2, -1\}$$

Exercise 3: If $A = \{-9, 0, 6\}$ and $B = \{2, 4, 6, 8\}$ then find $A \cup B$.

$A \cup B$ means that we want to combine the elements of both sets together to form a new set.

$$\begin{aligned} A \cup B &= \{-9, 0, 6\} \cup \{2, 4, 6, 8\} \\ &= \{-9, 0, 2, 4, 6, 8\} \end{aligned}$$

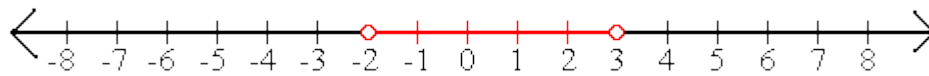
Any elements that are common to both sets are written only once in the union of the two sets.

Exercise 4: If $A = \{-9, 0, 6\}$ and $B = \{2, 4, 6, 8\}$ then find $A \cap B$.

$A \cap B$ means that we want to include only the elements that are contained in both sets in the new set.

$$\begin{aligned} A \cap B &= \{-9, 0, 6\} \cap \{2, 4, 6, 8\} \\ &= \{6\} \end{aligned}$$

Exercise 5: Graph $\{x \mid -2 < x < 3\}$ on a number line.



Since x is not equal to -2 or 3 there would be open points at these numbers to indicate that they are not part of the solution set. All values between these two numbers would be shaded as the solution set.