Precalculus Prerequisites Section 0.1 Exercises

1. Let $A = \left\{2013, 3.1311311131111\ldots, \frac{15}{12}, -\sqrt{5}, -\frac{36}{12}\right\}$

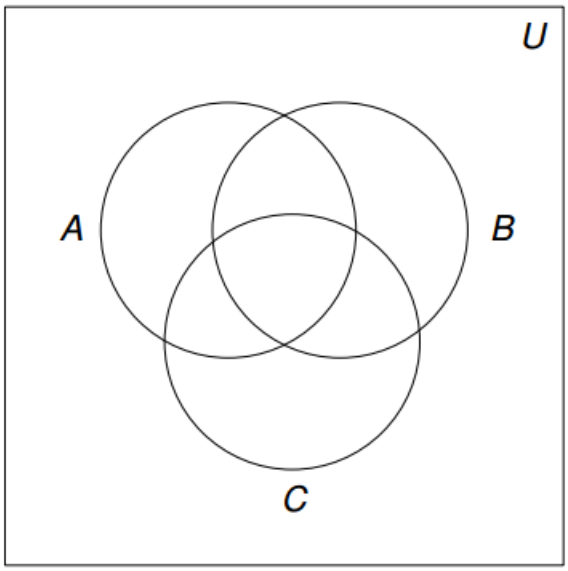
   (a) List the elements of A which are natural numbers.

   (b) List the elements of A which are irrational numbers.

   (c) Find $A \backslash \mathbb{Z}$

   (d) Find $A \backslash \mathbb{Q}$

2. Use the blank Venn Diagram below as a guide for you to shade the following sets.



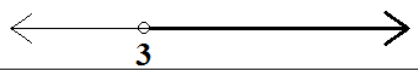
   (a) $A \cap C$

   (b) $A \cup B$

   (c) $A \cap (B \cap C)$

3. Using the same diagram above, show that $A \cup (B \cap C) = A \cap (B \cup C)$.

4. Fill in the following table:

Set of real numbers	Interval notation	Region on the real number line
$\{x \mid x \geq 2 \text{ or } x < -7\}$		
	$(-3, 9] \cup [12, \infty)$	
		

5. Find the indicated intersection or union and simplify if possible. Express your answers in interval notation.

   (a) $(3, 7) \cap [0, 10]$

   (b) $(4, \infty) \cup [-1, 5]$

   (c) $(-1, 7] \cap [7, \infty)$

6. Write the set using interval notation.

   (a) $\{x \mid x \neq 1969\}$

   (b) $\{x \mid x \leq -9 \text{ or } x \geq 13.5\}$

   (c) $\{x \mid x < 22 \text{ or } x = \pm 15\}$