



Skill: Using set and interval notation

Questions

Attempt these questions independently showing full and clear solutions. Check each answer as you go.

1. Express the following sets using set notation:
 - a. The set of all real numbers greater than 3.
 - b. The set of all integers strictly between 3 and 7
 - c. The set of all real numbers either bigger than or equal to 7 or less than or equal to 3
 - d. The set of all real numbers strictly between 3 and 7 or bigger than or equal to 10. [Hint: Use the union operator \cup you learned in GCSE]

2. List all of the values in the following sets:
 - a. $\{x: x \in \mathbb{N}, x < 5\}$
 - b. $\{d: d \in \mathbb{Z}, -2 \leq d < 8\}$
 - c. $\{q: q \in \mathbb{Z}, 0 < q < 5\}$
 - d. $\{s: s \in \mathbb{N}, -2 \leq s \leq 6\}$
 - e. $\{r: r \in \mathbb{N}, -6 < r < 3\}$
 - f. $\{t: t \in \mathbb{Z}, -\frac{1}{2} < t < \frac{9}{2}\}$

3. Write the following intervals in set notation:
 - a. $(1, 7)$
 - b. $(-3, 3)$
 - c. $[2, 6]$
 - d. $(-2, 10]$
 - e. $[3, \infty)$
 - f. $(-\infty, 10]$

4. Express the following sets as intervals
 - a. $\{x: x \in \mathbb{R}, 2 < x < 10\}$
 - b. $\{x: x \in \mathbb{R}, -1 \leq x < 10\}$
 - c. $\{x: x \in \mathbb{R}, \frac{1}{3} \leq x < 1\}$
 - d. $\{x: x \in \mathbb{R}, x < 13\}$
 - e. $\{x: x \in \mathbb{R}, x \geq 4\}$
 - f. $\{x: x \in \mathbb{R}, 2 < x\}$