1. Plot the following sets on the real number line.

   (a) $\{x \mid -3 < x < 3\}$ (b) $\{x \mid -3 \leq x \leq 3\}$ (c) $\{x \mid -3 \leq x < 3\}$ (d) $x > -2$

   (e) $x \leq 5$ (f) $2 \geq x \geq -4$ (g) $x < 0$ or $x > 3$ (h) $x \in \mathbb{R}$
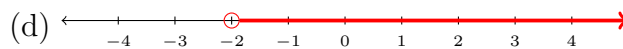
2. Express the following sets using interval notation.
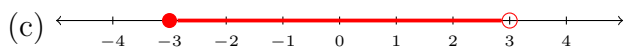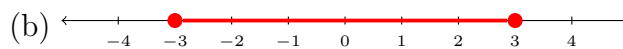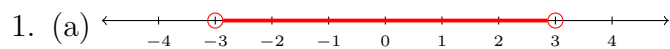
   (a) $x < -5$ (b) $x \geq -2$ (c) $-3 \leq x < 3$ (d) $1 > x$

   (e) $x \leq -4$ (f) $-7 < x \leq 2$ (g) $x < 0$ or $x > 3$ (h) $x < -1$ or $x \geq 2$

   (i) $x \neq 3$ (j) $x \neq -1$ or $x \neq 5$ (k) $x \in \mathbb{R}$

Answers

1. (a) $-4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4$

   (b) $-4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4$

   (c) $-4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4$

   (d) $-4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4$

   (e) $-2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6$

   (f) $-4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4$

   (g) $-4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4$

   (h) $-4 \quad -3 \quad -2 \quad -1 \quad 0 \quad 1 \quad 2 \quad 3 \quad 4$
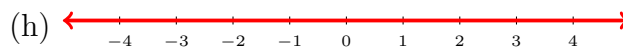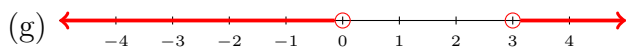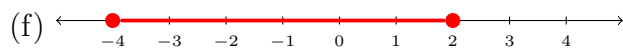
2. (a) $x \in (-\infty, -5)$ (b) $x \in [-2, \infty)$ (c) $x \in [-3, 3)$ (d) $x \in (-\infty, 1)$

   (e) $x \in (-\infty, -4]$ (f) $x \in (-7, 2]$ (g) $x \in (-\infty, 0) \cup (3, \infty)$

   (h) $x \in (-\infty, -1) \cup [2, \infty)$ (i) $x \in (-\infty, 3) \cup (3, \infty)$

   (j) $x \in (-\infty, -1) \cup (-1, 5) \cup (5, \infty)$ (k) $x \in (-\infty, \infty)$