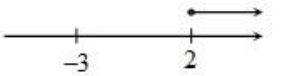
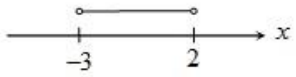
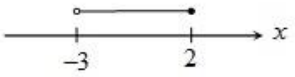
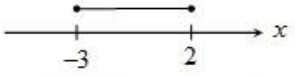
(7) LINEAR INEQUALITIES

(a) Linear Inequalities in One Unknown

(a) $\therefore\ x < -3 \ \Rightarrow\ x = \ldots, -6, -5, -4$	(b) $\therefore\ x \le -3 \ \Rightarrow\ x = \ldots, -5, -4, -3.$
(c) $\therefore\ x > 2 \ \Rightarrow\ x = 3,\ 4,\ 5,\ \ldots$	(d)  $\therefore\ x \ge 2 \ \Rightarrow\ x = 2,\ 3,\ 4,\ \ldots$
(e)  $\therefore\ -3 < x < 2 \ \Rightarrow\ x = -2,\ -1,\ 0,\ 1$	(f)  $\therefore\ -3 < x \le 2 \ \Rightarrow\ x = -2,\ -1,\ 0,\ 1,\ 2$
(g) $\therefore\ -3 \le x < 2 \ \Rightarrow\ x = -3,\ -2,\ -1,\ 0,\ 1$	(h)  $\therefore\ -3 \le x \le 2 \ \Rightarrow\ x = -3,\ -2,\ -1,\ 0,\ 1,\ 2$

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(b) Solving Inequalities in One Variable

Example 1 : $x + 3 < 5$ $x < 5 - 3$ $x < 2$	**Example 2** : $x + 3 \ge 5$ $x \ge 5 - 3$ $x \ge 2$	**Example 3** : $x - 3 < 5$ $x < 5 + 3$ $x < 8$	**Example 4** : $x - 3 \ge 5$ $x \ge 5 + 3$ $x \ge 8$
Example 5 : $2x < 5$ $x < \frac{5}{2}$	**Example 6** : $2x \ge 5$ $x \ge \frac{5}{2}$	**Example 7** : $-2x < 5$ $x > \frac{5}{-2}$ $x > -\frac{5}{2}$	**Example 8** : $-2x \ge 5$ $x \le \frac{5}{-2}$ $x \le -\frac{5}{2}$
Example 9 : $\frac{x}{2} < 5$ $x < 10$	**Example 10** : $\frac{x}{2} \ge 5$ $x \ge 10$	**Example 11** : $\frac{x}{-2} < 5$ $x > -10$	**Example 12** : $\frac{x}{-2} \ge 5$ $x \le -10$

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