

Practise, Apply, Solve 3.3, page 245

1. (a) two closed dots on 4 and 5
 (b) closed dot on -1 , solid line to right
 (c) open dot on -3 , solid line to left
 (d) solid line between open dots at 1 and 2
 (e) solid line between closed dot at -3 and open dot at 1
 (f) solid line between closed dots at 1 and 3
 (g) solid line to left of open dot at -3 , solid line to right of open dot at 2
 (h) solid line between closed dot at 2 and open dot at 5
 (i) solid line between open dots at -4 and 4
 (j) solid line to left of open dot at -3 , solid line to right of open dot at 3
2. (a) $\{x \mid -3 \leq x \leq 3, x \in \mathbf{I}\}$ or $\{x \mid x^2 < 16, x \in \mathbf{I}\}$
 (b) $\{x \mid x > -2, x \in \mathbf{I}\}$ or $\{x \mid x \geq -1, x \in \mathbf{I}\}$
 (c) $\{x \mid x \leq -2, x \in \mathbf{R}\}$
 (d) $\{x \mid x > -1, x \in \mathbf{R}\}$
 (e) $\{x \mid -5 \leq x < 3, x \in \mathbf{R}\}$
 (f) $\{x \mid x > 1 \text{ or } x < -1, x \in \mathbf{R}\}$ or $\{x \mid x^2 > 1, x \in \mathbf{R}\}$
 (g) $\{x \mid -3 \leq x \leq 3, x \in \mathbf{R}\}$ or $\{x \mid x^2 \leq 9, x \in \mathbf{R}\}$
3. (a) solid line to left of closed dot at 3, $a \leq 3$
 (b) solid line to left of open dot at -2 , $t < -2$
 (c) solid line to left of open dot at 4, $x < 4$
 (d) solid line to left of closed dot at 9, $s \leq 9$
 (e) solid line to left of open dot at -2 , $x < -2$
 (f) solid line to left of open dot at -1 , solid line to right open dot at 1; $x > 1$ or $x < -1$
 (g) solid line between closed dots at -5 and 5, $-5 \leq r \leq 5$
 (h) solid line to right of open dot at 3, $t > 3$
4. (a) $-2 \leq x < 1$ (b) $0 \leq x < 9$
 (c) $8 < b < 14$ (d) $-3 \leq x \leq 3$
5. (a) $b > -\frac{5}{2}$ (b) $\frac{9}{2} \leq x \leq 6$ (c) $x > \frac{-1}{8}$
6. (a) line passing through (0, 5) and (2.5, 0)
 (b) $R = \{y \mid y \geq 3, y \in \mathbf{R}\}$
 (d) $D = \{x \mid -6 \leq x \leq 0, x \in \mathbf{R}\}$
7. (a) $R = \{y \mid y > 6, y \in \mathbf{R}\}$
 (b) $R = \{y \mid 4 \leq y \leq 22, y \in \mathbf{R}\}$
 (c) $D = \{x \mid 1 \leq x \leq 5, x \in \mathbf{R}\}$
9. $D = \{x \mid -2 < x < 3, x \in \mathbf{R}\}$, $R = \{y \mid 3 \leq y < 8, y \in \mathbf{R}\}$
10. $D = \{t \mid 0 \leq t \leq 5, t \in \mathbf{R}\}$
11. (a) no solution (b) $x > 2$ (c) $x < 2$
12. The coefficient of x^2 in the equation of the parabola must lie between $\frac{1}{2}$ and 2.