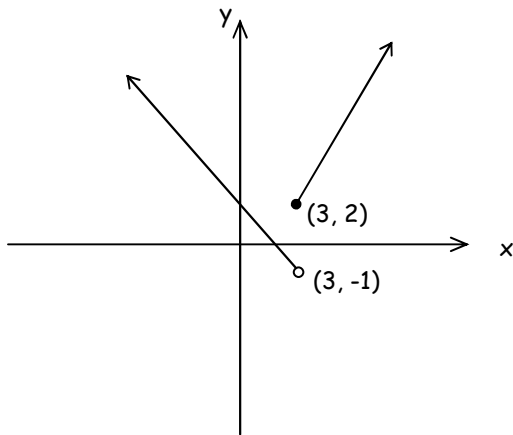


- 1.
- | | Domain | x-intercept | |
|----|---|--------------------------|--|
| a. | $(-\infty, -2) \cup (-2, 2) \cup (2, \infty)$ | $(3/2, 0)$ | |
| b. | $(-\infty, \infty)$ | $(0, 0)$ | |
| c. | $(-\infty, \infty)$ | $(3, 0)$ and $(-1/2, 0)$ | |
| d. | $(-\infty, 1) \cup (1, 6) \cup (6, \infty)$ | $(2, 0)$ | |
| e. | $[-4/3, \infty)$ | $(-4/3, 0)$ | |
| f. | $(-\infty, \infty)$ | no x-intercept | |
| g. | $(3/5, \infty)$ | no x-intercept | |
| h. | $[0, 5) \cup (5, \infty)$ | $(0, 0)$ | |
| i. | $(-\infty, -5) \cup [5, \infty)$ | $(5, 0)$ and $(-5, 0)$ | |
| j. | $(-3, -2) \cup [-1, \infty)$ | $(-1, 0)$ | |
- 2.
- | | | | | | |
|----|---|----|------------------------------------|----|-------------------------------------|
| a. | $3b^3c\sqrt{c}$ | b. | $\frac{4x^2}{y^2}\sqrt[3]{xy}$ | c. | $2x^2y^4$ |
| d. | $\frac{2x^7}{3y}\sqrt[4]{3xy}$ | e. | $\frac{4c^6}{3d}\sqrt{3c}$ | f. | $\frac{4a\sqrt{2}}{3}$ |
| g. | $\frac{3a^3}{b^2}$ | h. | $\frac{2}{x^2}$ | i. | $\frac{3ay^4}{10b^2x}\sqrt[3]{10b}$ |
| j. | $\frac{2\sqrt{3}}{3} + \sqrt{2} - 1 - \frac{\sqrt{6}}{2}$ | k. | $\frac{x - 2\sqrt{2x} + 2}{x - 2}$ | l. | $\frac{1}{a+b}\sqrt{a^2 - b^2}$ |
| m. | $\frac{4n^4}{m^2}$ | n. | $x^{13}z^2$ | o. | $-\frac{3}{n+2}$ |
| p. | $\frac{3}{4a(3a-2)}$ | | | | |
- 3.
- | | | | | | |
|----|----------------------|----|------------------------------|----|-----------------------------|
| a. | Example 5, p. 602 | b. | Example 6, p. 603 | c. | $[-4, -3] \cup [4, \infty)$ |
| d. | $(-1, -\frac{1}{3})$ | e. | $(-\infty, -2) \cup (-2, 0)$ | f. | $(0, 2) \cup [8, \infty)$ |
- 4.
- | | | | | | |
|----|-------------------------------------|----|--------------------------|----|---|
| a. | 32 | b. | $18x$ | c. | $\frac{a}{2}$ |
| d. | 162 | e. | 1372 | f. | $14x + 1$ |
| g. | $\frac{25}{32}$ | h. | 1 | i. | $\frac{4x^2 + 27x + 27}{(x+9)(x-9)(x+6)}$ |
| j. | $\frac{6}{(y+4)(x^2-3x+9)}$ | k. | $\frac{-3y}{(x+y)(x-y)}$ | l. | $\frac{2p+3}{3p+4}$ |
| m. | $\frac{(17h-1)(h-3)}{(h+2)(5h-12)}$ | n. | 0 | | |
- 5.
- | | | | | | |
|----|---|----|-----------------|----|---|
| a. | $x = \left\{ \frac{5}{4} + \frac{\sqrt{145}}{4}, \frac{5}{4} - \frac{\sqrt{145}}{4} \right\}$ | b. | $x = 1$ | c. | $x = \frac{13}{4}$ |
| d. | $x = 10$ | e. | $x = 3$ | f. | $x = \left\{ -\frac{1}{6}, \frac{1}{5} \right\}$ |
| g. | $x = \{-3\}$ | h. | $x = \{-8, 1\}$ | i. | $x = \left\{ \frac{1}{3} - i\frac{\sqrt{2}}{3}, \frac{1}{3} + i\frac{\sqrt{2}}{3} \right\}$ |
| j. | $x = \frac{ky + raz}{r}$ | | | | |

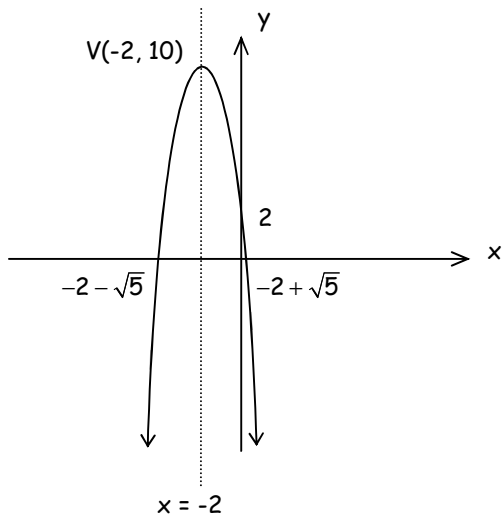
6. a. $h(\sqrt{3}) = \frac{\sqrt{3}}{6}$ b. $f(7x + 4) = -42x - 26$ c. $g(x + 2) = x^2 - 3$
 d. $g(2 + \sqrt{3}) = 0$ e. $j(-2) = 7$ f. $j(2) = 1$
 g. $j(3) = 3$ h. $j(16) = 29$ i. $g(1) - f(1) = 6$
 j. $h(0) - g(2) = 3$ k. $k(18) = 11$ l. $k(-8) = -4$

7. a. $f(x) > 0: (-\infty, -2) \cup (2, 4)$ $f(x) \leq 0: [-2, 2] \cup [4, \infty)$
 b. $g(x) \geq 0: (-5, 4) \cup [8, \infty)$ $g(x) < 0: (-\infty, 5) \cup (4, 8)$

8. $g(x) = \begin{cases} -x + 2 & \text{if } x < 3 \\ 2x - 4 & \text{if } x \geq 3 \end{cases}$



9. a. $y = -2x^2 - 8x + 2$
 standard form: $y = -2(x + 2)^2 + 10$
 x-intercepts: $(-2 - \sqrt{5}, 0), (-2 + \sqrt{5}, 0)$
 y-intercept: $(0, 2)$
 vertex: $(-2, 10)$
 axis of symmetry: $x = -2$



- b. $y = \frac{1}{2}x^2 - 4x + 9$
 standard form: $y = \frac{1}{2}(x - 4)^2 + 1$
 x-intercepts: none
 y-intercept: $(0, 9)$
 vertex: $(4, 1)$
 axis of symmetry: $x = 4$

