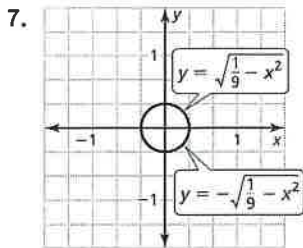


# Answers



The radius is  $\frac{1}{3}$  unit. The  $x$ -intercepts are  $\pm\frac{1}{3}$ . The  $y$ -intercepts are  $\pm\frac{1}{3}$ .

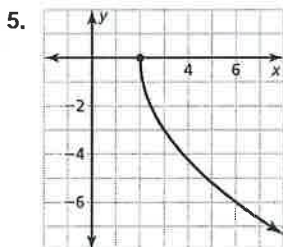
8. *Sample answer:*  $g(x) = 2\sqrt{x+1} - 3$ ,  
 $h(x) = -2\sqrt{-x} - 1$

## 5.3 Review & Refresh

1.  $x < -7$  or  $x > -5$     2.  $\frac{2a^{1/2}c^{1/5}}{b}$

3. 3;  $y = -\frac{1}{2}x^3 + 4x^2 - \frac{3}{2}x - 7$

4. 2.41



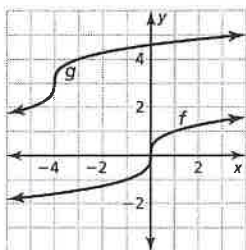
The domain is  $x \geq 2$ . The range is  $y \leq 0$ .

6.  $x = \frac{7}{3}$

7.  $y = \begin{cases} -2x - 1, & \text{if } x < 1 \\ -x + 3, & \text{if } x \geq 1 \end{cases}$

8. decrease by \$15; decrease by 10%

9. The graph of  $g$  is a translation 4 units left and 3 units up of the graph of  $f$ .



## 5.4 Extra Practice

- $x = -48$
- $x = -13$
- $x = 32,768$
- no real solution
- about 1.82 ft
- $x = 2$
- $x = -1$  and  $x = 15$
- $x = -1$
- $x = -6$
- $x = 4$
- $x = -\frac{1}{3}$
- $1 \leq x \leq 2$
- $x < 322.5$
- $0 \leq x \leq 65\frac{1}{3}$
- 1.76 ft

## 5.4 Review & Refresh

- $x^4 + 8x^3 - 7x$
- $x^4 - 3x^3 + 5$
- $g(x) = \sqrt{x+1} + 3$
- $x = -10$  and  $x = -2$ ; The point  $(-10, 4)$  is located 4 units to the left of the axis of symmetry, so the second solution is located 4 units to the right of the axis of symmetry at the point  $(-2, 4)$ .
- $g(x) = -x^3 + 3x^2 - 6$ ; The graph of  $g$  is a reflection in the  $y$ -axis and a translation 2 units down of the graph of  $f$ .
- $g(x) = \frac{1}{8}x^3 + \frac{3}{4}x^2 + 2$ ; The graph of  $g$  is a horizontal stretch by a factor of 2 and a translation 6 units up of the graph of  $f$ .
- $-2 \leq x < 14$
- $x \geq 125$
- $x \geq -8$
- $3 \leq x < 7$
- $523 \text{ m}^3$
- $x = \frac{7}{2}$  and  $x = -1$
- $(1, 2, -3)$ ; Explanations will vary.

## 5.5 Extra Practice

- $(f + g)(x) = 4\sqrt[3]{x}$  and the domain is all real numbers;  $(f - g)(x) = -5\sqrt[3]{x}$  and the domain is all real numbers;  $(f + g)(-1000) = -40$ ;  
 $(f - g)(-1000) = 50$