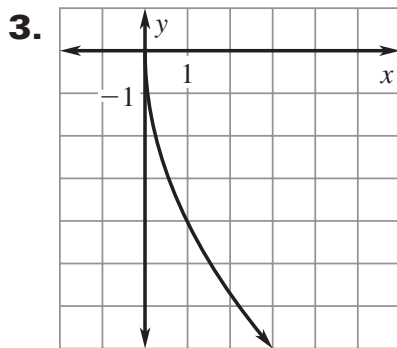


# Answers for 6.5

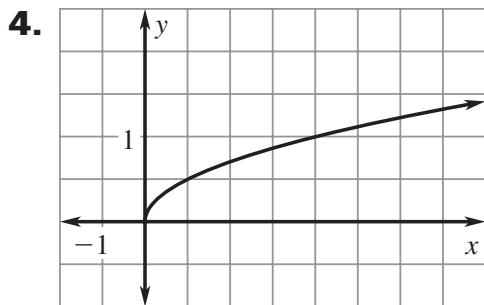
For use with pages 449–451

## 6.5 Skill Practice

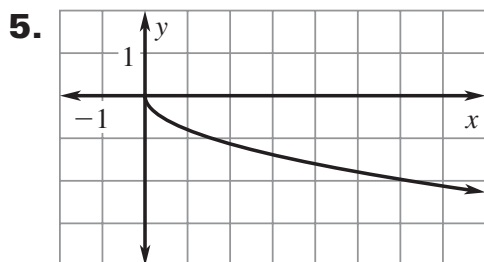
1. radical
2. **a.** The graph will be reflected over the  $x$ -axis and will rise faster.  
**b.** The graph will be translated 2 units right.  
**c.** The graph will be translated 4 units up.



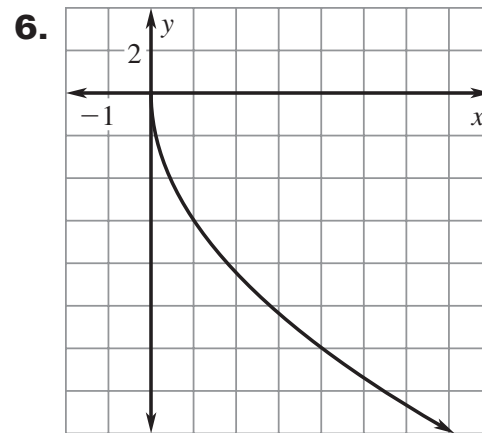
domain:  $x \geq 0$ , range:  $y \leq 0$



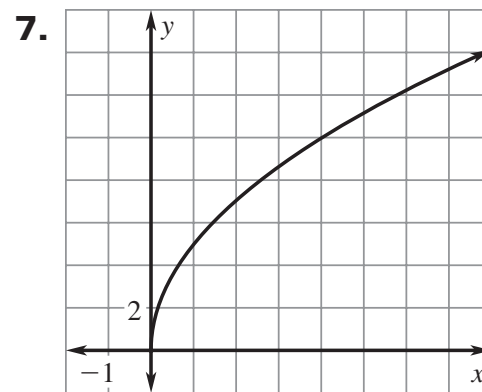
domain:  $x \geq 0$ , range:  $y \geq 0$



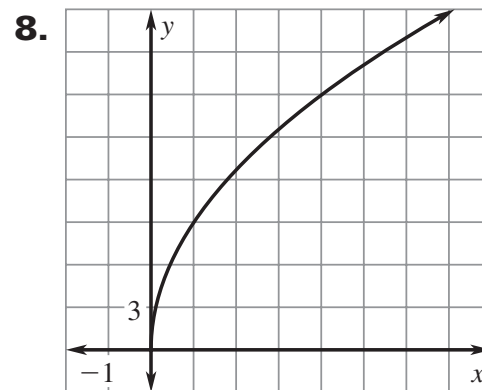
domain:  $x \geq 0$ , range:  $y \leq 0$



domain:  $x \geq 0$ , range:  $y \leq 0$



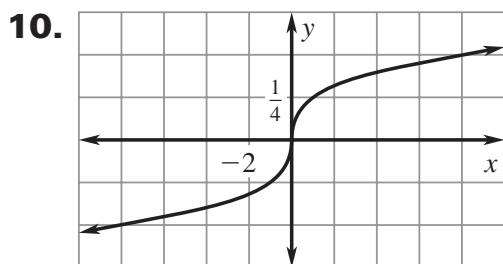
domain:  $x \geq 0$ , range:  $y \geq 0$



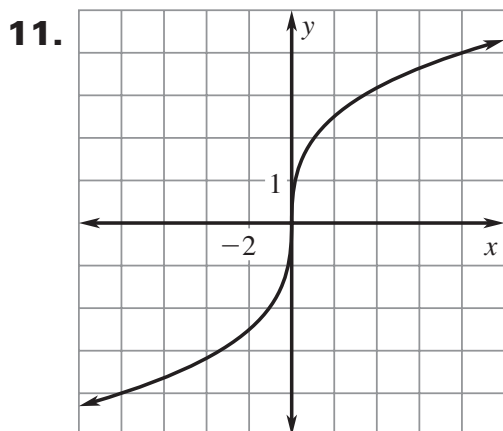
domain:  $x \geq 0$ , range:  $y \geq 0$

9. D

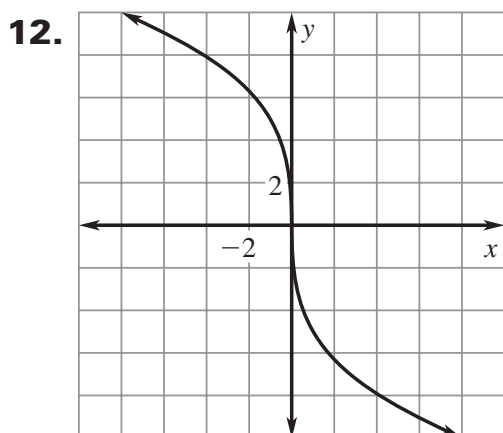
**Answers for 6.5** *continued*  
For use with pages 449–451



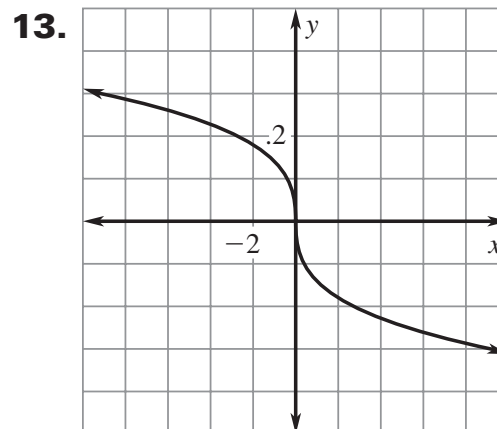
domain: all real numbers,  
range: all real numbers



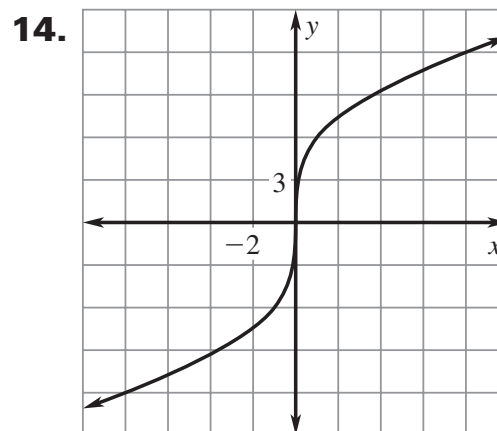
domain: all real numbers,  
range: all real numbers



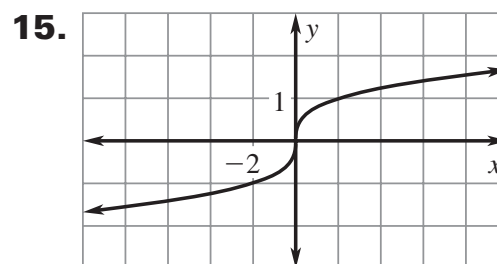
domain: all real numbers,  
range: all real numbers



domain: all real numbers,  
range: all real numbers

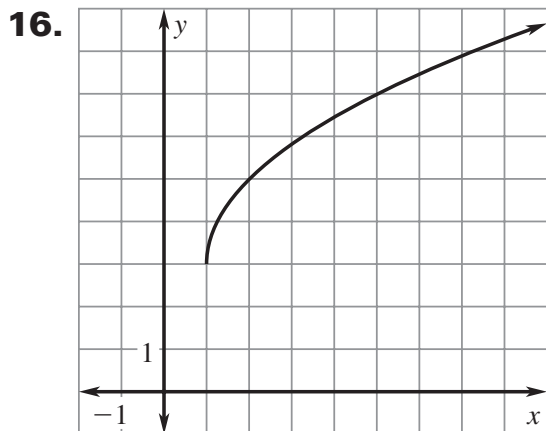


domain: all real numbers,  
range: all real numbers

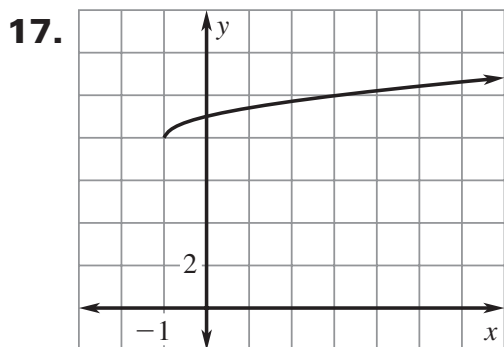


domain: all real numbers,  
range: all real numbers

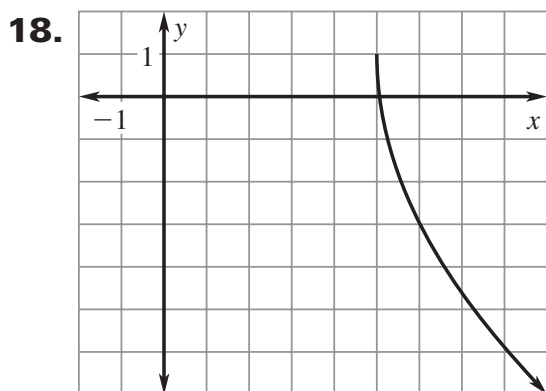
**Answers for 6.5** *continued*  
For use with pages 449–451



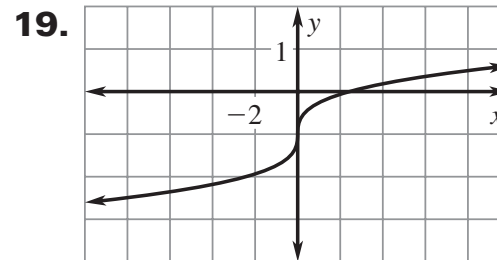
domain:  $x \geq 1$ , range:  $y \geq -1$



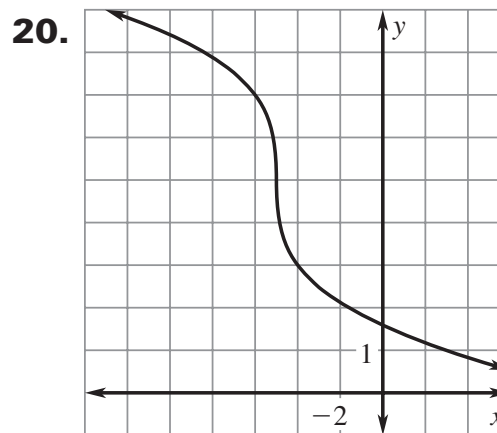
domain:  $x \geq -1$ , range:  $y \geq 2$



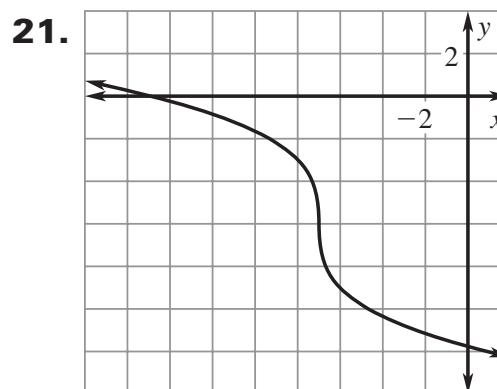
domain:  $x \geq 5$ , range:  $y \leq 1$



domain: all real numbers,  
range: all real numbers

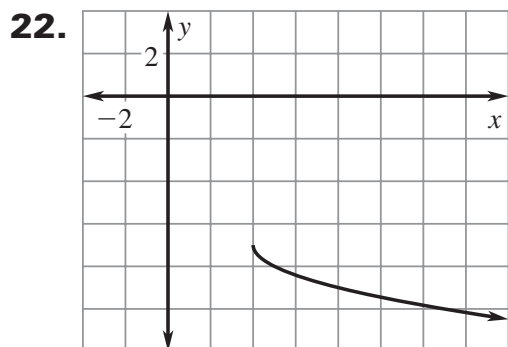


domain: all real numbers,  
range: all real numbers

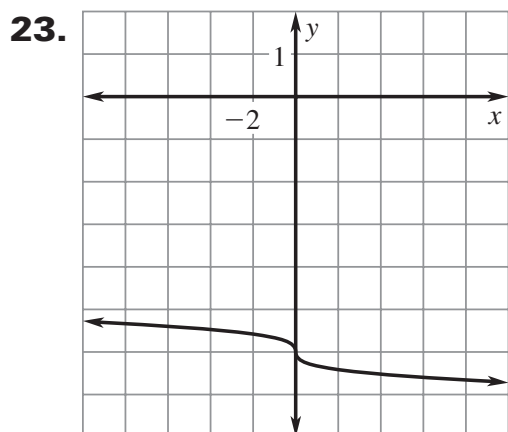


domain: all real numbers,  
range: all real numbers

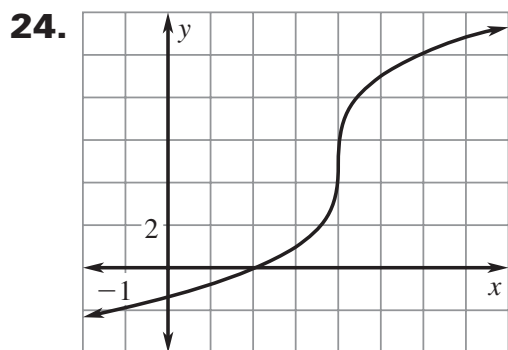
**Answers for 6.5** *continued*  
For use with pages 449–451



domain:  $x \geq 4$ , range:  $y \leq -7$



domain: all real numbers,  
range: all real numbers



domain: all real numbers,  
range: all real numbers

**25.** The domain is limited because the square root of a negative number is not a real number. Since the domain is restricted, the range is also affected.

**26.** The graph was translated horizontally in the wrong direction; the graph of  $y = -2\sqrt[3]{x+1} - 3$  is the graph of  $y = -2\sqrt[3]{x}$  translated left 1 unit and down 3 units.

**27.** C

**28.** Domain:  $x \geq -5$ , range  $y \geq 0$ ; the expression under the radical sign must be greater than or equal to 0, so substitute the least value of  $x$  into the equation and find  $y$ .

**29.** Domain:  $x \geq 12$ , range:  $y \geq 0$ ; the expression under the radical sign must be greater than or equal to 0, so substitute the least value of  $x$  into the equation and find  $y$ .

**30.** Domain:  $x \geq 0$ , range:  $y \geq -4$ ; the expression under the radical sign must be greater than or equal to 0, so substitute the least value of  $x$  into the equation and find  $y$ .

**31.** Domain: all real numbers, range: all real numbers; there are no restrictions on finding the cube root of a number and therefore no restrictions on the range.

**Answers for 6.5** *continued*  
For use with pages 449–451

**32.** Domain: all real numbers, range: all real numbers; there are no restrictions on finding the cube root of a number and therefore no restrictions on the range.

**33.** Domain:  $x \geq 3$ , range:  $y \geq 6$ ; the expression under the radical sign must be greater than or equal to 0, so substitute the least value of  $x$  into the equation and find  $y$ .

**34.** *Sample answer:* If  $n$  is even, the graph will have a restricted domain and range. If  $n$  is odd, the domain and range will be all real numbers.

**6.5 Problem Solving**

**35.** about 43 ft above sea level

**36. a.** about 1.6 sec

**b.** about 3.25 ft

**37. a.**  $y = 331.5\sqrt{1 + \frac{C}{273.15}}$

**b.** domain:  $C \geq -273.15$ ,  
range:  $v \geq 0$

**38.** about 308 horsepower

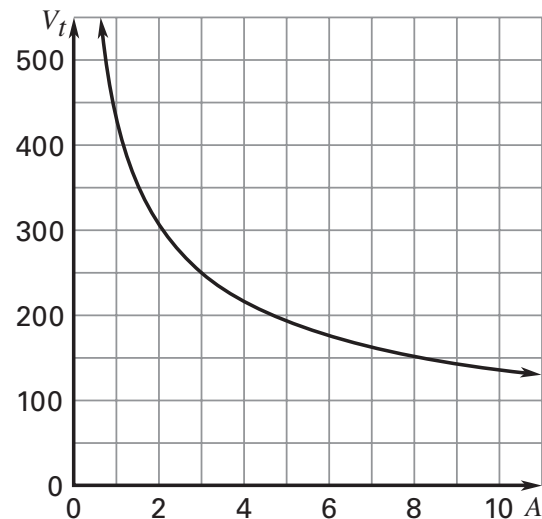
**39. a.**  $v_t = 33.7\sqrt{\frac{165}{A}}$

**b.** *Sample:*

<b>A</b>	2	4	6
<b><math>v_t</math></b>	306.1	216.44	176.72

<b>A</b>	8	10
<b><math>v_t</math></b>	153.05	136.89

**c.**



**40. a.**  $S = \pi r^2 + \pi r, \frac{S}{\pi} = r^2 + r,$

$$\frac{S}{\pi} + \frac{1}{4} = r^2 + r + \frac{1}{4},$$

$$\frac{S}{\pi} + \frac{1}{4} = \left(r + \frac{1}{2}\right)^2,$$

$$\sqrt{\frac{S}{\pi} + \frac{1}{4}} = r + \frac{1}{2},$$

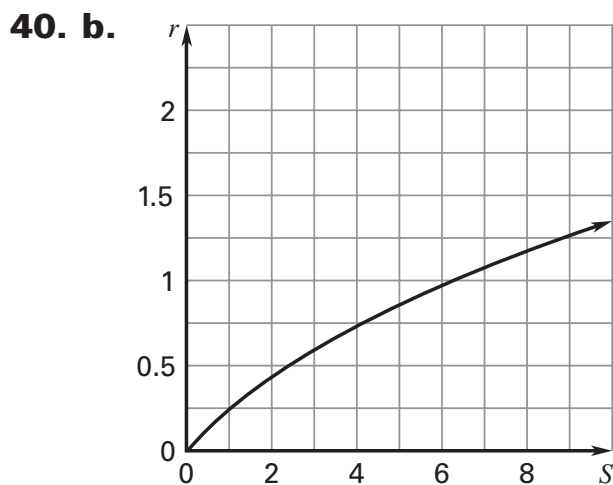
$$\sqrt{\frac{4S + \pi}{4\pi}} = r + \frac{1}{2},$$

$$\frac{1}{\sqrt{\pi}}\sqrt{S + \frac{\pi}{4}} = r + \frac{1}{2},$$

$$\frac{1}{\sqrt{\pi}}\sqrt{S + \frac{\pi}{4}} - \frac{1}{2} = r$$

## Answers for 6.5 *continued*

For use with pages 449–451



### 6.5 Mixed Review

- 41.**  $-8 \pm \sqrt{3}$       **42.**  $3 \pm 2\sqrt{3}$   
**43.**  $\pm 2\sqrt{2}$       **44.**  $7 \pm 2\sqrt{3}$   
**45.**  $20 \pm \sqrt{17}$       **46.**  $11 \pm 2\sqrt{6}$   
**47.** 0, about 1.4, about  $-1.2$ ,  
about  $-5.2$   
**48.** about 7.6, about 1.1,  
about  $-0.86 \pm 1.4i$   
**49.**  $-2, 1, 2i, -2i$   
**50.**  $-5, -1, -3i, 3i$   
**51.**  $-\frac{5}{3}x^{1/6}$       **52.**  $25x^{4/3}$   
**53.**  $9x$       **54.**  $-15x^{7/6}$   
**55.**  $5\sqrt[3]{9x}$       **56.**  $-3 \cdot 5^{1/2}x^{1/3}$   
**57.**  $5^{5/3}x^{4/9}$       **58.**  $-3^{3/2}x^{1/4}$