

MULTIPLE CHOICE. Choose the one alternative that best completes the statement or answers the question.

If the expression is in exponential form, write it in radical form. If it is in radical form, write it in exponential form.

1) $(3x^7y^6)^{8/5}$ 1) _____
 A) $\left(\sqrt[8]{\frac{3x^7y^6}{8}}\right)^5$ B) $\left(\sqrt[5]{3x^7y^6}\right)^8$ C) $\left(\sqrt[5]{\frac{3x^7y^6}{5}}\right)^8$ D) $\left(\sqrt[8]{3x^7y^6}\right)^5$

Simplify the expression. Assume that all variables are non-negative.

2) $\sqrt{200x^7y^8}$ 2) _____
 A) $10x^3y^4\sqrt{2x}$ B) $10x^3y^4\sqrt{2}$ C) $10k^7y^8\sqrt{2x}$ D) $10y^4\sqrt{2x^7}$

3) $\sqrt[4]{1296x^8y^{16}}$ 3) _____
 A) $6x^2y^4$ B) $36x^4y^2$
 C) $10.645x^2y^4$ D) not a real number

Evaluate the radical function at the indicated value.

4) $f(x) = \sqrt{2x - 5}$ 4) _____
 $f(43)$
 A) 86 B) 81 C) 9.3 D) 9

Solve the problem.

- 5) The average temperature rises above a ambient temperature in an enclosed vehicle are shown in the table for various elapsed times. 5) _____

Average Temperature Rises in an Enclosed Vehicle
 (for Ambient Temperatures between 68°F and 80°F)

Elapsed Time (minutes)	Average Temperature Rise (°F)
0	0
10	19
20	25
30	30
40	33
50	36
60	38

Let $f(t)$ be the average temperature rise (°F) in a vehicle at t minutes after the vehicle is enclosed. A model for the situation is $f(t) = 7.6\sqrt[5]{t^2}$. Estimate the average temperature rise 19 minutes after the vehicle is enclosed. Also, estimate the temperature inside the car 19 minutes after the vehicle is enclosed if the ambient temperature is 73°F.

- A) 11,959°F; 12,032°F B) 33°F; 98°F
 C) 14°F; 87°F D) 25°F; 98°F

Simplify. Assume that each variable is nonnegative.

6) $\sqrt{2x} - 4\sqrt{18x} - 5\sqrt{8x}$ 6) _____
 A) $-9\sqrt{28x}$ B) $-9\sqrt{2x}$ C) $-21\sqrt{2x}$ D) $-21\sqrt{28x}$

7) $3\sqrt{x^2}(\sqrt[3]{9x} - \sqrt[3]{9x^8})$ 7) _____
 A) $3x\sqrt[3]{9x} - 3x^3\sqrt[3]{3}$ B) $9x - 3x^3\sqrt[3]{3x}$
 C) $3x\sqrt[3]{9} - 3x^3\sqrt[3]{9x}$ D) $9x - 3x^9\sqrt[3]{9}$

8) $(4 + \sqrt{5})(7 + \sqrt{5})$ 8) _____
 A) $33 + 11\sqrt{5}$ B) 33 C) $28 + 11\sqrt{5}$ D) $33 + \sqrt{5}$

9) $(\sqrt{t} - b)(\sqrt{t} + b)$ 9) _____
 A) $t + 2b\sqrt{t} - b^2$ B) $t - b^2$ C) $t - 2b\sqrt{t} - b^2$ D) $t - b$

10) $(5 + \sqrt{3})^2$ 10) _____
 A) $25 + 10\sqrt{3}$ B) $28 + 10\sqrt{3}$ C) $8 + 10\sqrt{3}$ D) $28 + 5\sqrt{3}$

11) $(\sqrt{x-1} + 3)^2$ 11) _____
 A) $x + 6\sqrt{x-1} + 10$ B) $x + 6\sqrt{x-1} + 16$ C) $x + 6\sqrt{x-1} + 9$ D) $x + 6\sqrt{x-1} + 8$

12) $\frac{3x}{\sqrt{5x}}$ 12) _____
 A) $\frac{3\sqrt{5x}}{5}$ B) $\frac{\sqrt{15}}{5}$ C) $\frac{3\sqrt{5x}}{25x}$ D) $3\sqrt{x}$

13) $\sqrt{\frac{50x^3}{y^5}}$ 13) _____
 A) $\frac{x\sqrt{50xy}}{y^3}$ B) $\frac{5x}{y^2}\sqrt{\frac{2x}{y}}$ C) $\frac{5x\sqrt{2xy}}{y^3}$ D) $\frac{5x^3\sqrt{2}}{y^5}$

Simplify.

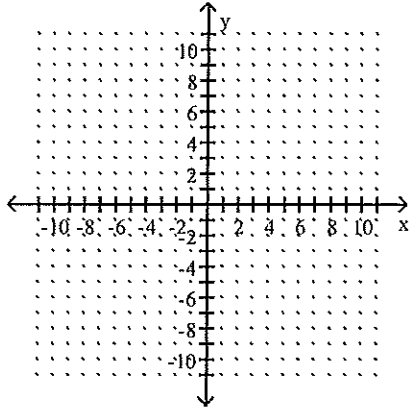
14) $\frac{5}{\sqrt{6} + \sqrt{11}}$ 14) _____
 A) $\sqrt{11} - \sqrt{6}$ B) $\sqrt{5}$ C) $\sqrt{11} + \sqrt{6}$ D) $\sqrt{6} - \sqrt{11}$

15) $\frac{3}{6 - \sqrt{x}}$ 15) _____
 A) $\frac{18 + 3\sqrt{x}}{36 - x}$ B) $\frac{3}{36 - x}$ C) $\frac{18 - 3\sqrt{x}}{36 - x}$ D) $\frac{18 + 3\sqrt{x}}{36 + x}$

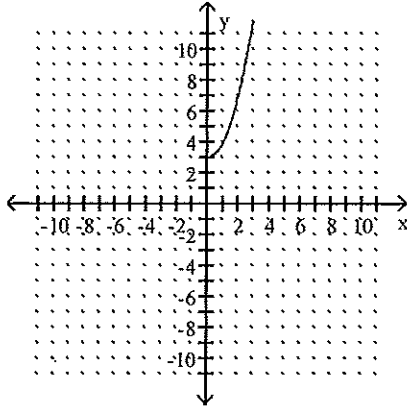
Sketch the graph of the function. Also, find the domain and range of the function.

16) $f(x) = 2\sqrt{x+3}$

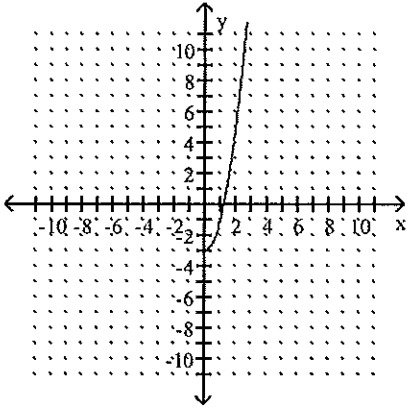
16) _____



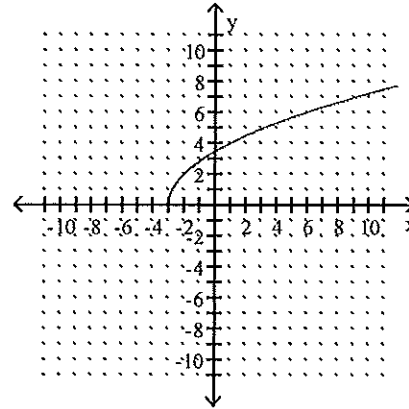
A) domain: $x \geq 0$; range: $y \geq 3$



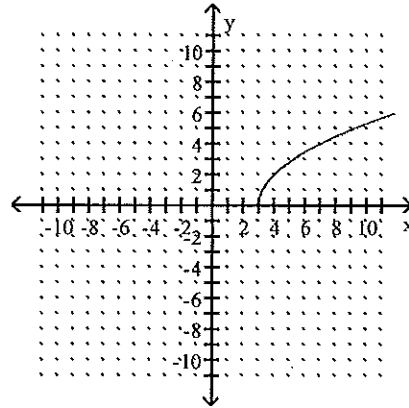
C) domain: $x \geq 0$; range: $y \geq -3$



B) domain: $x \geq -3$; range: $y \geq 0$

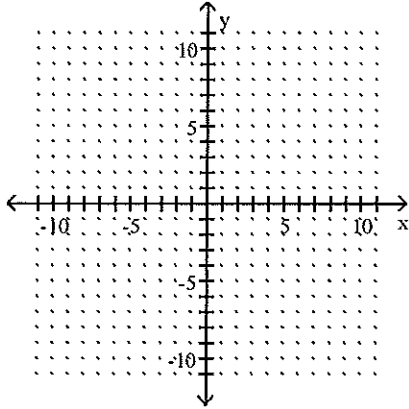


D) domain: $x \geq 3$; range: $y \geq 0$



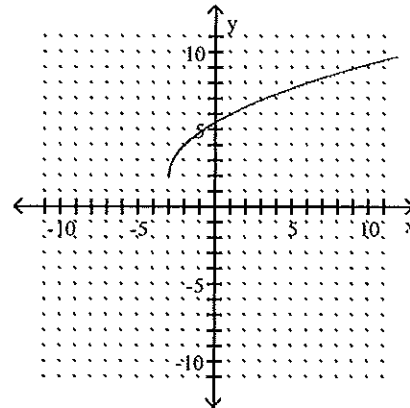
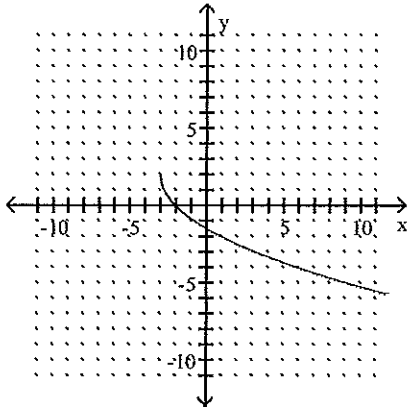
17) $y = 2\sqrt{x+3} + 2$

17) _____



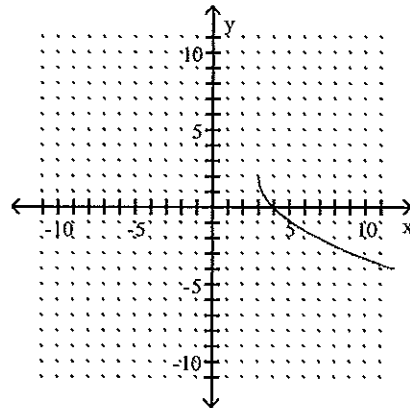
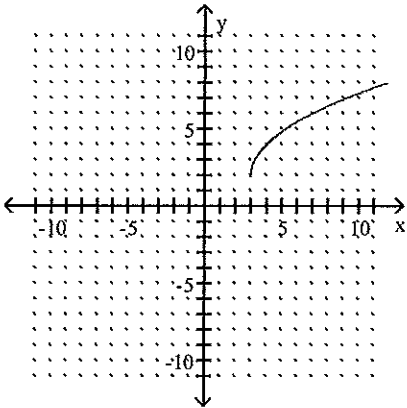
A) domain: $x \geq -3$; range: $y \leq 2$

B) domain: $x \geq -3$; range: $y \geq 2$



C) domain: $x \geq 3$; range: $y \geq 2$

D) domain: $x \geq 3$; range: $y \leq 2$



Solve.

18) $\sqrt[3]{x+5} - 5 = 0$

A) {20}

B) {125}

C) {25}

D) {120}

18) _____

19) $\sqrt{7x-8} = \sqrt{6x+8}$

A) -16

B) 0

C) 16

D) empty set

19) _____

20) $\sqrt{6x+3} = \sqrt{4x-3} - 2$

A) -1, 6

B) 13

C) 1, 13

D) empty set

20) _____

Answer Key

Testname: CHAPTER 13 TEST 1

- 1) B
- 2) A
- 3) A
- 4) D
- 5) D
- 6) C
- 7) C
- 8) A
- 9) B
- 10) B
- 11) D
- 12) A
- 13) C
- 14) A
- 15) A
- 16) B
- 17) B
- 18) D
- 19) C
- 20) D