

Exam

# Chapter 13 practice #2

Name \_\_\_\_\_

**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)  $(6x + 5)^{3/10}$  1) \_\_\_\_\_  
 A)  $\sqrt[10]{6x^3 + 125}$       B)  $\sqrt[10]{216x^3 + 125}$       C)  $(\sqrt[3]{(6x + 5)})^{10}$       D)  $(\sqrt[10]{(6x + 5)})^3$

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

- 2)  $\sqrt[5]{(x^4yz^5)^{50}}$  2) \_\_\_\_\_  
 A)  $x^4y^{10}z^5$       B)  $x^{40}y^{10}z^{50}$       C)  $x^{40}y^{10}z^5$       D)  $x^{40}yz^{50}$

- 3)  $\sqrt[3]{64x^4y^5}$  3) \_\_\_\_\_  
 A)  $4xy\sqrt[3]{xy^2}$       B)  $4xy\sqrt[3]{xy}$       C)  $5xy\sqrt[3]{xy^2}$       D)  $4xy\sqrt{xy^2}$

**Evaluate the radical function at the indicated value.**

- 4)  $f(x) = \sqrt[3]{x + 1}$  4) \_\_\_\_\_  
 $f(63)$   
 A) 64      B) 16      C) 15      D) 4

**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 how long it would take for the temperature in an enclosed vehicle to reach 120°F if the ambient temperature is 77.

- A) 991 min      B) 1040 min      C) 76 min      D) 5798 min

Simplify. Assume that each variable is nonnegative.

- 6)  $\sqrt{5x^2} - 3\sqrt{20x^2} + 6\sqrt{20x^2}$  6) \_\_\_\_\_  
 A)  $7x\sqrt{32}$  B)  $7x\sqrt{5}$  C)  $3x\sqrt{5}$  D)  $3x\sqrt{32}$
- 7)  $6\sqrt{3x}(\sqrt{11} + \sqrt{3x})$  7) \_\_\_\_\_  
 A)  $6\sqrt{33} + 3x$  B)  $6\sqrt{33x} + 18x$  C)  $18\sqrt{11x} + 18x$  D)  $6\sqrt{11} + 3x$
- 8)  $(\sqrt{12} + \sqrt{z})(\sqrt{12} - \sqrt{z})$  8) \_\_\_\_\_  
 A)  $12 - 2\sqrt{12z}$  B)  $12 - z$  C)  $12 - 2\sqrt{z}$  D)  $12z$
- 9)  $(4 - \sqrt{x})(2 - \sqrt{x})$  9) \_\_\_\_\_  
 A)  $8 - 5x$  B)  $8 - 6\sqrt{x} - x$  C)  $8 - 5\sqrt{x}$  D)  $8 - 6\sqrt{x} + x$
- 10)  $(7\sqrt{x} - 4)^2$  10) \_\_\_\_\_  
 A)  $49x - 16$  B)  $49x + 40$  C)  $49x + 56\sqrt{x} + 16$  D)  $49x - 56\sqrt{x} + 16$
- 11)  $(\sqrt{3x - 4} - 5)^2$  11) \_\_\_\_\_  
 A)  $3x + 25\sqrt{3x - 4} + 21$  B)  $3x + 25\sqrt{3x - 4} + 25$   
 C)  $3x - 10\sqrt{3x - 4} + 21$  D)  $3x - 10\sqrt{3x - 4} + 25$
- 12)  $\frac{5}{\sqrt{2x}}$  12) \_\_\_\_\_  
 A)  $9x$  B)  $\frac{25\sqrt{2x}}{2x}$  C)  $\frac{5\sqrt{2x}}{2x}$  D)  $5\sqrt{2x}$
- 13)  $\sqrt{\frac{5p^{11}q^{14}}{11r}}$  13) \_\_\_\_\_  
 A)  $\frac{p^5q^7\sqrt{55pr}}{11r}$  B)  $\frac{5p^5q^7\sqrt{55pr}}{11r}$  C)  $\frac{p^5q^7\sqrt{55pqr}}{11r}$  D)  $\frac{p^6q^7\sqrt{55r}}{11r}$

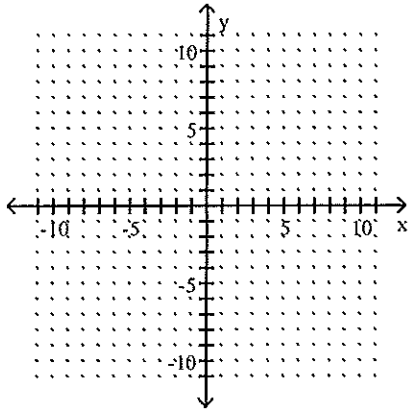
Simplify.

- 14)  $\frac{\sqrt{x} - 14}{\sqrt{x} + \sqrt{5}}$  14) \_\_\_\_\_  
 A)  $\frac{-14\sqrt{5}}{5}$  B)  $\frac{x - \sqrt{5x} - 14\sqrt{x} + 14\sqrt{5}}{x - 5}$   
 C)  $\frac{\sqrt{5x} + 14\sqrt{x} - 14\sqrt{5}}{5}$  D)  $\frac{x - 19\sqrt{x} + 14\sqrt{5}}{x - 5}$
- 15)  $\frac{\sqrt{x} - 12}{\sqrt{x} + 12}$  15) \_\_\_\_\_  
 A)  $\frac{x + 144}{x - 144}$  B)  $\frac{x - 24\sqrt{x} + 144}{x - 144}$  C)  $-1$  D)  $-24\sqrt{x}$

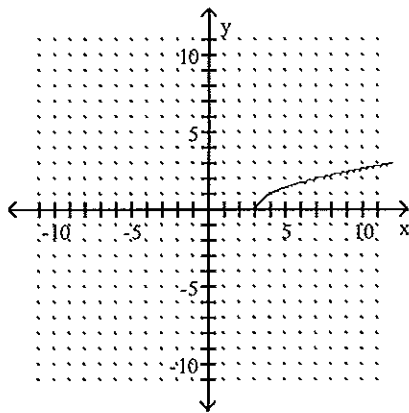
Sketch the graph of the function.

16)  $y = \sqrt{3-x}$

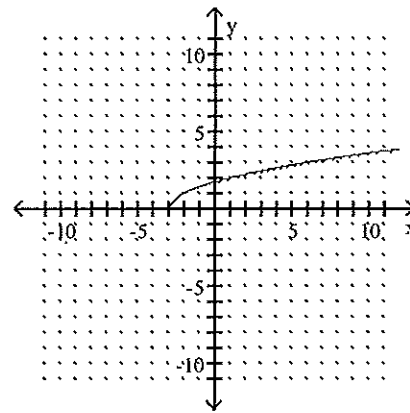
16) \_\_\_\_\_



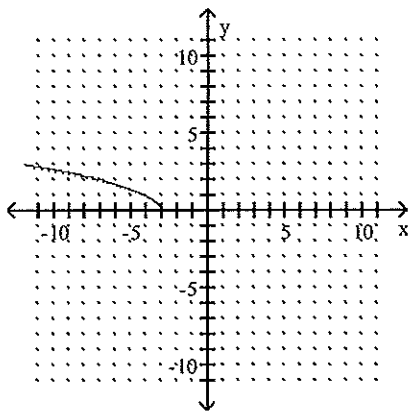
A)



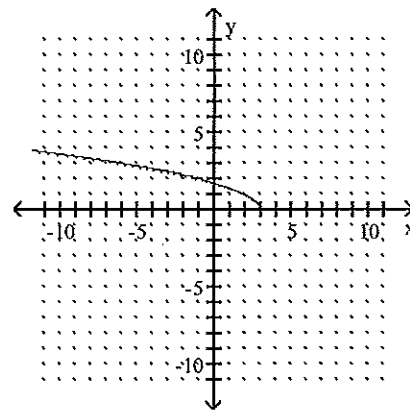
B)



C)



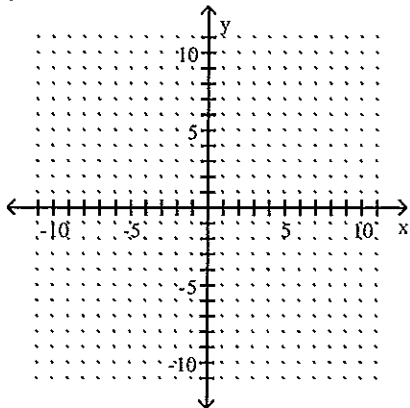
D)



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

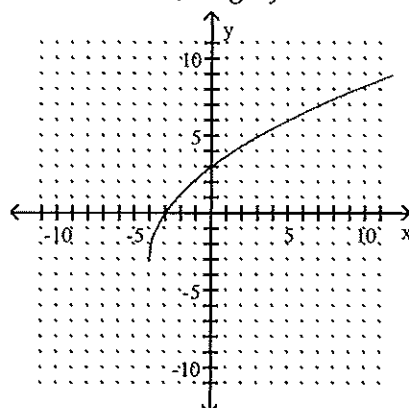
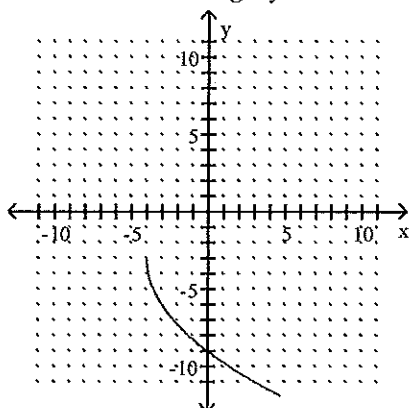
17)  $y = -3\sqrt{x+4} - 3$

17) \_\_\_\_\_



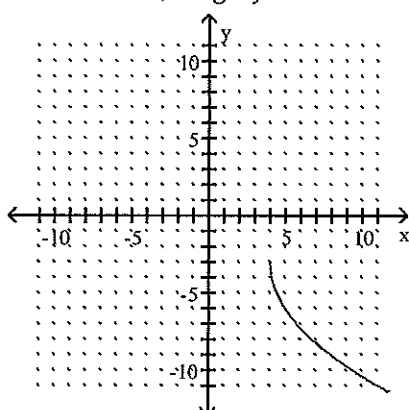
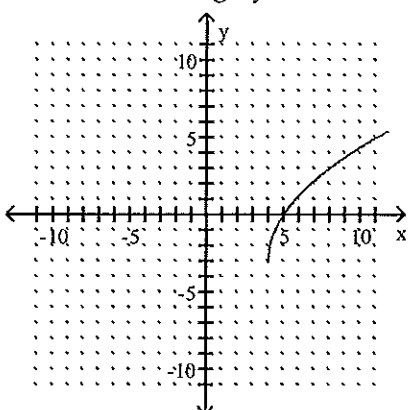
A) domain:  $x \geq -4$ ; range:  $y \leq -3$

B) domain:  $x \geq -4$ ; range:  $y \geq -3$



C) domain:  $x \geq 4$ ; range:  $y \geq -3$

D) domain:  $x \geq 4$ ; range:  $y \leq -3$



Solve.

18)  $\sqrt[3]{2x+3} - 3 = 0$

18) \_\_\_\_\_

A) 3

B)  $\frac{25}{3}$

C) 12

D)  $\frac{27}{2}$

19)  $\sqrt[3]{1-10x} - \sqrt[3]{9-6x} = 0$

19) \_\_\_\_\_

A) -2

B)  $\frac{1}{2}$

C) 2

D)  $-\frac{1}{2}$

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

A)  $\frac{83}{2}$

B)  $-\frac{3}{2}, 2$

C)  $\frac{3}{2}, \frac{83}{2}$

D) empty set

20) \_\_\_\_\_

Answer Key

Testname: CHAPTER 13 TEST 2

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