Practice 17.1 & 17.2

Name_____

Find the domain of f. Write your answer in interval notation.

1) $f(x) = \sqrt{x + 1}$

2) $f(x) = \sqrt{12 - 4x}$

3) $f(x) = \sqrt{3x^2 + 5}$

4) $f(x) = \sqrt{8 - 8x}$

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

Match to the equivalent expression.

5) $\sqrt{x^5}$

A) $x^{-5/2}$ B) $x^{5/2}$

C) $-x^{2/5}$ D) $x^{-2/5}$

6) $16^{-3/2}$

A) -64 B) $\frac{1}{64}$

C) 64 D) -24

7) $\frac{y^{5/6}}{y^{1/3}}$

A) $y^{5/6}$ B) $\frac{1}{y}$

C) $y^{1/2}$ D) y

Use radical notation to write the expression. Do not simplify.

8) $x^{5/2}$

9) $m^{4/3}$

10) $p^{-4/5}$

11) $(x + 10)^{1/2}$

12) $(9m + n)^{6/7}$

Use a rational exponent to write the expression.

13) $\sqrt[8]{(3n - 9)^9}$

Write the expression in radical notation. Evaluate by hand when possible.

14) $(x^2y^2)^{1/9}$

Use a positive rational exponent to write the expression.

15) $\sqrt[4]{x^5} \cdot \sqrt[3]{x^4}$

Simplify the expression. Assume that all variables are positive.

16) $(x^6y^8)^{1/2}$

17) $\left(\frac{x^6}{y^9}\right)^{-1/3}$

18) $\left(16x^8y^4\right)^{1/2}$

19) $\sqrt[3]{x^{18}y^3}$

20) $\sqrt[4]{\sqrt{t}}$

21) $\sqrt[5]{\frac{t^5}{z^{10}}}$

22) $\sqrt{x} \cdot \sqrt[3]{x^2} \cdot \sqrt[5]{x^4}$

Solve the problem.

23) The cost of manufacturing clocks is given by $c = 49(n + 36)^{1/2}$, where c is the cost in dollars and n is the number produced. What is the cost when no clocks are produced?

1) $[-1, \infty)$
2) $(-\infty, 3]$
3) $(-\infty, \infty)$
4) $(-\infty, 1]$
5) B
6) B
7) C
8) $\sqrt{x^5}$
9) $\sqrt[3]{m^4}$
10) $\frac{1}{\sqrt[5]{p^4}}$
11) $\sqrt{x + 10}$
12) $\sqrt[7]{(9m + n)^6}$
13) $(3n - 9)^{9/8}$
14) $\sqrt[9]{x^2y^2}$
15) $x^{31/12}$
16) x^3y^4
17) $\frac{y^3}{x^2}$
18) $4x^4y^2$
19) x^6y
20) $t^{1/16}$
21) $\frac{t}{z^2}$
22) $x^{59/30}$
23) $294