Group Review Assignment (Sections 9.2 and 10.1–10.6)

Name_____

MULTIPLE CHOICE. Choose the answer that best completes the statement or answers the question. Write your choice on the blank provided to the right. There is only one correct answer per question. You may write on this paper. If a question appears to not have instructions, the instructions for the previous question apply. Good luck.

Rationalize the <u>numerator</u> and simplify. Assume all variables represent positive real numbers.

1) $\frac{7\sqrt{x}}{\sqrt{2y}}$ 1) _____

A) $\frac{7x}{\sqrt{2y}}$

B) $\frac{7x}{\sqrt{2xy}}$

C) $\frac{7\sqrt{2xy}}{2y}$

D) $\frac{7x}{\sqrt{14xy}}$

Rationalize the <u>denominator</u> and simplify. Assume that all variables represent positive real numbers.

2) $\sqrt[3]{\frac{4}{9}}$ 2) _____

A) $\frac{\sqrt[3]{36}}{9}$

B) $\frac{\sqrt[3]{12}}{3}$

C) $\frac{\sqrt[3]{324}}{81}$

D) $\frac{\sqrt[3]{324}}{9}$

Find the root. Assume that all variables represent nonnegative real numbers.

3) $-\sqrt[4]{1296}$ 3) _____

A) 10.645

B) 36

C) −6

D) not a real number

4) $\sqrt[4]{\frac{625x^4}{y^{16}}}$ 4) _____

A) $\frac{5x}{y^{16}}$

B) $\frac{x}{y^4}$

C) $\frac{5}{y^4}$

D) $\frac{5x}{y^4}$

Use the properties of exponents to simplify the expression. Write with positive exponents.

5) $\frac{x^{1/6} \cdot x^{2/5}}{x^{2/7}}$ 5) _____

A) $\frac{1}{x^{179/210}}$

B) $x^{179/210}$

C) $x^{59/210}$

D) $\frac{1}{x^{59/210}}$

Find the cube root.

6) $\sqrt[3]{\frac{x^{12}}{125y^6}}$ 6) _____

A) $\frac{5y^2}{x^4}$

B) $\frac{x^3}{5y^3}$

C) $\frac{x^4}{5y^2}$

D) $\frac{x^4}{25y^2}$

Solve.

7) When an object is dropped to the ground from a height of h meters, the time it takes for the object to reach the ground is given by the equation $t = \sqrt{\frac{h}{4.9}}$, where t is measured in seconds. If an object hits the ground after falling for 3 seconds, find the height from which the object was dropped. 7) _____

A) 441 m

B) 44.1 m

C) 147 m

D) 14.7 m

8) $\sqrt{5x + 5} + 3 = 12$ 8) _____

A) $\frac{76}{5}$

B) 380

C) $\varnothing$

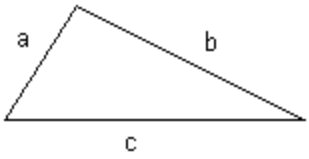
D) $\frac{5}{76}$

9) If the three lengths of the sides of a triangle are known, Heron's formula can be used to find its area. If a, b, and c are the three lengths of the sides, Heron's formula for area is: 9) _____

$A = \sqrt{s(s - a)(s - b)(s - c)}$

where s is half the perimeter of the triangle, or $s = \frac{1}{2}(a + b + c)$.

Use this formula to find the area of the triangle if a = 9 cm, b = 11 cm and c = 16 cm.



A) $180\sqrt{15}$ sq cm

B) $3\sqrt{14}$ sq cm

C) $18\sqrt{7}$ sq cm

D) $18\sqrt{14}$ sq cm

10) $\sqrt[3]{11x - 6} = \sqrt[3]{x + 10}$ 10) _____

A) $\frac{1}{3}$

B) $\frac{2}{5}$

C) $\frac{16}{11}$

D) $\frac{8}{5}$

Add or subtract. Assume all variables represent positive real numbers.

11) $9\sqrt[3]{x^3y^{10}} - 3xy\sqrt[3]{8y^7}$ 11) _____

A) $6x^2y^4\sqrt[3]{y}$

B) $3x^2y^3\sqrt[3]{2y}$

C) $6xy^4\sqrt[3]{8y}$

D) $3xy^3\sqrt[3]{y}$

12) $\sqrt{2a} + 5\sqrt{72a} - 2\sqrt{8a}$ 12) _____

A) $3\sqrt{2a}$

B) $27\sqrt{82a}$

C) $3\sqrt{82a}$

D) $27\sqrt{2a}$

Use the product rule to multiply. Assume all variables represent positive real numbers.

13) $\sqrt{3} \cdot \sqrt{7}$ 13) _____

A) $\sqrt{21}$

B) 21

C) $\sqrt{3 + 7}$

D) $\sqrt{10}$

14) $\sqrt{3x^3} \cdot \sqrt{3x^5}$ 14) _____

A) $3x^4$

B) $\sqrt{3x^4}$

C) $\sqrt{9x^8}$

D) $x^4\sqrt{6}$

Fill in the blank.

15) A number's distance from 0 is called its _____. 15) _____

A) union

B) intersection

C) solution

D) absolute value

SHORT ANSWER. Answer the question, including units in your answer if needed. Show work and circle your final answer.

Multiply, and then simplify if possible. Assume all variables represent positive real numbers.

16) $(8\sqrt{2} - 2)^2$ 16) _____

Use a calculator to approximate the square root to 3 decimal places. Check to see that the approximation is reasonable.

17) $\sqrt{6}$ 17) _____

Solve the absolute value equation.

18) $|x| = 3$ 18) _____

19) $|4x + 3| = 9$ 19) _____

20) $|3x + 8| + 7 = 10$ 20) _____

Find the square root. Assume that all variables represent positive real numbers.

21) $\sqrt{441}$ 21) _____

Find the distance between the pair of points.

22) (2.7, 3.5) and (–7.2, 5.4) 22) _____

Approximate the distance to two decimal places.

Evaluate.

23) If $f(x) = \sqrt{2x + 4}$, find the value of f(5). 23) _____

1) B
Objective: (10.5) Rationalize Numerators

2) B
Objective: (10.5) Rationalize denominators having one term.

3) C
Objective: (10.1) Find nth Roots

4) D
Objective: (10.1) Find nth Roots

5) C
Objective: (10.2) Use the Rules for Exponents to Simplify Expressions that Contain Rational Exponents

6) C
Objective: (10.1) Find Cube Roots

7) B
Objective: (10.6) Solve application problems.

8) A
Objective: (10.6) Solve equations that contain radical expressions.

9) C
Objective: (10.6) Solve application problems.

10) D
Objective: (10.6) Solve equations that contain radical expressions.

11) D
Objective: (10.4) Add or subtract radical expressions.

12) D
Objective: (10.4) Add or Subtract Radical Expressions

13) A
Objective: (10.3) Use the product rule for radicals.

14) A
Objective: (10.3) Use the Product Rule for Radicals

15) D
Objective: (9.5) Vocabulary Check

16) $132 - 32\sqrt{2}$
Objective: (10.4) Multiply radical expressions.

17) 2.449
Objective: (10.1) Approximate roots.

18) 3, –3
Objective: (9.2) Solve Absolute Value Equations

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

Objective: (9.2) Solve Absolute Value Equations

20) $-\frac{5}{3}, -\frac{11}{3}$

Objective: (9.2) Solve Absolute Value Equations

21) 21
Objective: (10.1) Find Square Roots

22) 10.08 units
Objective: (10.3) Use the Distance and Midpoint Formula

23) $\sqrt{14}$
Objective: (10.1) Find function values of square and cube roots.

Distance and Midpoint Formulas for Chapter 10 Test

Distance formula: $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Midpoint formula: $M = \left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2} \right)$