Group Review Assignment (Section 9.2 and Chapter 10)

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.

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

1) $\sqrt[4]{\dfrac{256x^4}{y^8}}$

1) _____

A) $\dfrac{4}{y^2}$

B) $\dfrac{4x}{y^2}$

C) $\dfrac{4x}{y^8}$

D) $\dfrac{x}{y^2}$

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

2) $\sqrt{441}$

2) _____

A) 21

B) 220

C) 22

D) not a real number

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

3) $\dfrac{x^{-1/3} \cdot x^{3/2}}{x^{-2/7}}$

3) _____

     A) $x^{37/42}$

     B) $x^{61/42}$

     C) $\dfrac{1}{x^{61/42}}$

     D) $\dfrac{1}{x^{37/42}}$

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

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

4) _____

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

     B) $3x^4$

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

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

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

5) $\sqrt{5a} + 5\sqrt{180a} - 7\sqrt{125a}$

5) _____

     A) $-4\sqrt{310a}$

     B) $-2\sqrt{310a}$

     C) $-2\sqrt{5a}$

     D) $-4\sqrt{5a}$

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

6) $\dfrac{5\sqrt{x}}{\sqrt{3y}}$

A) $\dfrac{5x}{\sqrt{3xy}}$

B) $\dfrac{5x}{\sqrt{3y}}$

C) $\dfrac{5x}{\sqrt{15xy}}$

D) $\dfrac{5\sqrt{3xy}}{3y}$

Solve.

7) $-\sqrt{5x + 5} = -4$

A) 55

B) $\dfrac{5}{11}$

C) $\dfrac{11}{5}$

D) ∅

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

8) $-\sqrt[4]{16}$

A) 2.497

B) –2

C) 4

D) not a real number

Find the cube root.

9) $\sqrt[3]{\dfrac{x^{12}}{8y^6}}$

9) _____

    A) $\dfrac{x^3}{2y^3}$

    B) $\dfrac{2y^2}{x^4}$

    C) $\dfrac{x^4}{4y^2}$

    D) $\dfrac{x^4}{2y^2}$

Find the distance between the pair of points.

10) (1.5, 5.2) and (−7.9, −4.3)

    Approximate the distance to two decimal places.

10) _____

    A) 9.44 units

    B) 11.45 units

    C) 13.36 units

    D) 6.46 units

Solve the absolute value equation.

11) $|x| = 8$

11) _____

    A) 8

    B) 64

    C) 8, −8

    D) −8

12) $|2x + 7| = 4$

12) _____

    A) $\dfrac{3}{2}, \dfrac{11}{2}$

    B) $-\dfrac{3}{7}, -\dfrac{11}{7}$

    C) $-\dfrac{3}{2}, -\dfrac{11}{2}$

    D) $\varnothing$

Fill in the blank.

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

13) _____

    A) union

    B) absolute value

    C) intersection

    D) solution

Solve the absolute value equation.

14) $|8x + 9| + 3 = 8$

14) _____

    A) $-\dfrac{4}{9}, -\dfrac{14}{9}$

    B) $-\dfrac{1}{2}, -\dfrac{7}{4}$

    C) $\dfrac{1}{2}, \dfrac{7}{4}$

    D) $\varnothing$

Perform the indicated operation. Write the result in the form a + bi.

15) $(81 - 9i)(9 + i)$ 15) _____

    A) 738

    B) 738 – 81i

    C) 720

    D) 738 – 162i

16) $\dfrac{2}{5i}$ 16) _____

    A) $-\dfrac{5}{2}i$

    B) $\dfrac{2}{5}i$

    C) $-\dfrac{2}{5}i$

    D) $\dfrac{5}{2}i$

Write in terms of i.

17) $\sqrt{-16}$ 17) _____

    A) $-i\sqrt{4}$

    B) ±4

    C) –4i

    D) 4i

Find the power of i.

18) $(4i)^4$

A) 256

B) –256i

C) 256i

D) –256

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

Chapter 10 Formulas for Test

n^{th} root of the nth power of a:

If n is an **odd** integer (like 3 or 7), $\sqrt[n]{a^n} = a$

If n is an **even** integer (like 2 or 4), $\sqrt[n]{a^n} = |a|$.

If we can assume a is a non-negative number, then $\sqrt[n]{a^n} = a$ for any value of n.

Rules of exponents:

Product rule: $a^m \cdot a^n = a^{m+n}$

Quotient rule: $\dfrac{a^m}{a^n} = a^{m-n}$

Power rule: $\left(a^m\right)^n = a^{m \cdot n}$

Product and Quotient of Radicals Rules: $\sqrt[n]{a} \cdot \sqrt[n]{b} = \sqrt[n]{a \cdot b}$ and $\dfrac{\sqrt[n]{a}}{\sqrt[n]{b}} = \sqrt[n]{\dfrac{a}{b}}$

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

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