Unit 8 Study Guide

Circle the expressions that are equivalent to the one given. Choose <u>ALL</u> that apply.

1) x^5
   - a. 5x
   - b. $\frac{5}{x}$
   - c. $x \cdot x \cdot x \cdot x \cdot x$
   - d. $5x \cdot 5x \cdot 5x \cdot 5x \cdot 5x$
   - e. x + x + x + x + x

2) x^3
   - a. 3x
   - b. $\frac{3}{x}$
   - c. $x \cdot x \cdot x$
   - d. $3x \cdot 3x \cdot 3x$
   - e. x + x + x

3) xy^2
   - a) $x \cdot x \cdot x \cdot y \cdot y$
   - b) $x \cdot y \cdot y$
   - c) x $\cdot$ y^2
   - d) $x^2 + y^2$

4) $(xy)^2$
   - a) $x \cdot x \cdot y \cdot y$
   - b) $x \cdot y \cdot y$
   - c) $x^2 \cdot y^2$
   - d) $x^2 + y^2$

5) $(2x)^0$
   - a) 1
   - b) 2x
   - c) $(x^2)^0$
   - d) $2x^2 \cdot 2x^0$

6) $x^3 \cdot x^2$
   - a. 6x
   - b. 5x
   - c. $(x^3)^2$
   - d. $\dfrac{x^3}{x^{-2}}$
   - e. x^6
   - f. X^5

7) $x^{10} \div x^5$
   - a. x^5
   - b. x^2
   - c. 2
   - d. $\dfrac{1}{a^{-5}}$
   - e. $\dfrac{x^{10}}{x^5}$

8) $(2x^3y^2)^4$
   - a. $8x^7y^6$
   - b. $2^4x^{12}y^8$
   - c. $\dfrac{32x^{15}y^2}{2x^3y^{-6}}$
   - d. $(2xy^3)(8x^{11}y^5)$

9) $5x^3y \cdot \frac{1}{2} x^{-4}y^4$
   - a. $\dfrac{2 \frac{1}{2} y^5}{x}$
   - b. $5.5x^{-7}y^4$
   - c. $\dfrac{5y^5}{2x}$
   - d. $2.5x^{-7}y^5$

Classify each number. Circle ALL that apply.

10) $\sqrt{100}$
     a) Natural   b) Whole   c) Integer   d) Rational   e) Irrational f) Real

11) $\sqrt{20}$
     a) Natural   b) Whole   c) Integer   d) Rational   e) Irrational f) Real

12) -12
     a) Natural   b) Whole   c) Integer   d) Rational   e) Irrational f) Real

13) $\frac{0}{2}$
     a) Natural   b) Whole   c) Integer   d) Rational   e) Irrational f) Real

14) $\frac{12}{20}$
     a) Natural   b) Whole   c) Integer   d) Rational   e) Irrational f) Real

15) $\frac{-14}{7}$
     a) Natural   b) Whole   c) Integer   d) Rational   e) Irrational f) Real

16) -5.5
     a) Natural   b) Whole   c) Integer   d) Rational   e) Irrational f) Real

Write in scientific notation.

17) 6,30,000,000,000,000   18)   .0000000000987

19) 98,000,000,000   20) .000573

Simplify. Leave your answer in scientific notation.

21) $\frac{2 \times 10^{25}}{4 \times 10^{5}}$ 22) $(4 \times 10^{35})(3 \times 10^{24})$ 23) $4.3 \times 10^{8} + 2.2 \times 10^{10}$

24) $\frac{4 \times 10^{15}}{2 \times 10^{3}}$ 25) $(7 \times 10^{15})(3 \times 10^{10})$ 26) $2 \times 10^{6} + 3 \times 10^{7}$

27. Approximate $\sqrt{50}$ to the tenths place.

Review:

28) Find the slope of the line with the equation $4x + 6y = 18$

29) Find the slope of the line with the equation $2x - 3y = 18$

30) Find the equation of a line that goes through $(1,6)$ and $(2, -4)$

31) Find the equation of a line that goes through $(-2,8)$ and $(1, 11)$

32) Solve for x: $2 - 3(2x + y) = 2y + x$

33) Solve for y: $3x - (y + 3) = 2y - 5x + 1$

34) $5 - 2(3x + 3) = 3x - 6x - 1$