Name: _____ Period: _____ Date: _____

Unit 8 Study Guide

Circle the expressions that are equivalent to the one given. Choose ALL 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) $2x^2 \cdot 2x^0$

if $x \neq 0$

6) $x^3 \cdot x^2$

a. $6x$ b. $5x$ c. $(x^3)^2$ d. $\frac{x^3}{x^2}$ e. x^6 f. x^5

7) $x^{10} \div x^5$

a. x^5 b. x^2 c. 2 d. $\frac{1}{a^{-5}}$ e. $\frac{x^{10}}{x^5}$

if x then yes

8) $(2x^3y^2)^4$

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

9) $5x^3y \cdot \frac{1}{2}x^4y^4$

a. $\frac{2\frac{1}{2}y^5}{x}$ b. $5.5x^7y^4$ c. $\frac{5y^5}{2x}$ d. $2.5x^7y^5$

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
6.3×10^{14}

18) .0000000000987
9.87×10^{-11}

19) 98,000,000,000
9.8×10^{10}

20) .000573
5.73×10^{-4}

Simplify. Leave your answer in scientific notation.

21) $\frac{2 \times 10^{25}}{4 \times 10^{5}}$
$1/2 \times 10^{20}$
5×10^{19}

22) $(4 \times 10^{35})(3 \times 10^{24})$
12×10^{59}
1.2×10^{60}

23) $4.3 \times 10^{8} + 2.2 \times 10^{10}$
$.043 \times 10^{10}$
2.2×10^{10}
2.243×10^{10}

24) $\frac{4 \times 10^{15}}{2 \times 10^{3}}$
2×10^{12}

25) $(7 \times 10^{15})(3 \times 10^{10})$
21×10^{25}
2.1×10^{26}

26) $2 \times 10^{6} + 3 \times 10^{7}$
$.2 \times 10^{7}$
$+ 3 \times 10^{7}$
3.2×10^{7}

$\sqrt{49}$
7 2

7.1
7.1
71
41 + x
50.41

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

≈ 7.1

Review:

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

$\frac{6y = -4x + 18}{6}$

$y = -2/3\,x + 3$

$-2/3$

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

$-2x \quad -2x$

$\frac{-3y = -2x + 18}{-3}$

$y = 2/3 + -6$

$2/3$

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

$\frac{6 - -4}{1 - 2} = \frac{10}{-1} = -10$

$6 = -10(1) + b$

$6 = -10$

$16 = b$

$y = -10x + 16$

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

$\frac{8 - 11}{-2 - 1} = \frac{-3}{-3} = 1$

$8 = -2 + b$

$10 = b$

$y = x + 10$

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

$2 - 6x - 3y = 2y + x$

$+6x \quad -2y \quad -2y \quad +6x$

$\frac{2 - 5y = 7x}{7}$

$x = -5/7\,y + 2/7$

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

$3x - y - 3 = 2y - 5x + 1$

$+5x \quad +y \quad -1 \quad +y \quad +5x \quad -1$

$\frac{8x - 4 = 3y}{3}$

$y = 8/3\,x - 4/3$

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

$5 - 6x - 6 = -3x - 1$

$+3x \quad +3x$

$-3x - 1 = +1$

$+1 \quad +1$

$x = 0$