KEY

Name: _____ Date: _____

Chapter 1 Practice Test

1) Write in power form and then in standard form. a) -3(3)(3)(3) b) (-2)(-2)(-2)(-2)(-2)

a) power: -3^4 standard: -81 (b) power: $(-2)^5$ standard: -32

2) Write as a repeated multiplication and then in standard form. a) $(-5)^3$ b) -4^2

a) repeated multiplication: $-5 \times -5 \times -5$ standard: -125

b) repeated multiplication: -4×4 standard: -16

3) What is the answer to -6^2? What about $(-6)^2$? Why are they different?

$-6^2 = -6 \times 6 = -36$ -6^2 base is 6, so only one neg out front, so answer is neg

$(-6)^2 = (-6) \times (-6) = 36$ $(-6)^2$ base is -6 and an even number of negs = pos

4) What is the answer to -2^3? What about $(-2)^3$? Explain the similarities and differences.

$-2^3 = -2 \times 2 \times 2 = -8$

$(-2)^3 = -2 \times -2 \times -2 = -8$

similarities: both have same answer of -8

differences: -2^3 base is 2, only one neg out front

$(-2)^3$ base is -2, three negatives

5) Evaluate. a) 10^4 b) 10^8 c)$(-5)^0$ d) 5^0 e) -5^0

a) 10000 b) 100 000 000 c) 1 d) 1 e) -1

6) Put into standard notation. a) 3.26×10^{-4} b) 9.1×10^1

a) 0.000326 b) 91

7) Put into scientific notation. a) 15 600 000 b) 0.000 002

a) 1.56×10^7 b) 2×10^{-6}

8) Evaluate using a calculator and give the answer in scientific notation. $(3.26 \times 10^{-3})(6.7 \times 10^5)$

2184.2 $\Rightarrow$ 2.2×10^3

9) Evaluate. a) $[6 + (-2)^3(-1)^4]^2 - 5$

a) $[6 + (-8)(1)]^2 - 5$

$[6 + -8]^2 - 5$

$[-2]^2 - 5$

$4 - 5$

-1

b) $3(4^2 - 27 \div 3) \times [(-2)^3 + 3^2]$

b) $3(16 - 27 \div 3) \times [-8 + 9]$

$3(16 - 9) \times [-8 + 9]$

$3(7) \times 1$

21×1

21

10) Write each expression as a power. a) $7^2 \times 7^4$ b) $(-5)(-5)^8$ c) $6^7 \div 6^5$ d) $\frac{(-4)^3}{(-4)^2}$

a) 7^6 b) $(-5)^9$ c) 6^2 d) $(-4)^1 = -4$

11) Simplify, then evaluate. a) $3^2 - 3[3^3 \times 3^0 \div 3^2]$

$3^2 - 3[3^3 \div 3^2]$

$3^2 - 3^1[3^1]$

$3^2 - 3^2$

$9 - 9$

$= 0$

12) Write as a product of powers. $[(-7) \times 10]^9$

$(-7)^9 \times 10^9$

13) Write as a quotient of powers. $(17 \div (-3))^3$ $= 17^3 \div (-3)^3$

14) Write as a single power. a) $[(-8)^2]^6$ b) $-[2^9]^5$

a) $(-8)^{12}$ b) -2^{45}

15) Simplify, then evaluate. a) 3^{-4} b) $(-2)^{-5}$

a) $\frac{1}{3^4} = \frac{1}{81}$ b) $\frac{1}{(-2)^5} = \frac{1}{-32} = -\frac{1}{32}$

16) Simplify, then evaluate. a) $\left(\frac{-1}{2}\right)^3$ b) $\frac{(-4)^{-5}}{(-4)^{-3}}$

$\left(\frac{-1}{2}\right)^3 = \frac{(-1)^3}{2^3}$

$= \frac{-1}{8}$

$-5 - (-3) = -5 + 3 = -2$

$(-4)^{-2} = \frac{1}{(-4)^2} = \frac{1}{16}$

a) $\frac{-1}{8}$ b) $\frac{1}{16}$