

Name: _____

Date: Key

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: $(-5)(-5)(-5)$ 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?

$$-6^2 = -6(6) = -36 ; (-6)^2 = (-6)(-6) = 36$$

For -6^2 , 6 is the base For $(-6)^2$, -6 is the base

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

$-2^3 = -2(2)(2) = -8 ; (-2)^3 = (-2)(-2)(-2) = -8$ same answer, but different bases. -2^3 has base 2. $(-2)^3$ has base -2 .

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. $(3.26 \times 10^{-3})(6.7 \times 10^5)$

$$2184.2$$

$$2.1842 \times 10^3$$

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

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

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

$$3(7) \times [1]$$

$$21 \times 1$$

$$21$$

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) $7^{2+4} = 7^6$ b) $(-5)^{1+8} = (-5)^9$ c) $6^{7-5} = 6^2$ d) $(-4)^{3-2} = -4$

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

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

$3^2 - 3^2$
 $9 - 9$
 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) $\frac{1}{(-2)^5} = -\frac{1}{32}$

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

a) -8 $= \frac{2^3}{(-1)^3} = \frac{8}{-1}$ b) $(-4)^{-2} = \frac{1}{(-4)^2} = \frac{1}{16}$

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

17) Complete the following metric conversions:

a) $67 \text{ dam} = 6.7 \times 10^4 \text{ cm}$ (b) $4.8 \times 10^{-3} \text{ g} = 4.8 \times 10^{-5} \text{ hg}$ (c) $0.443 \text{ ks} = 4.43 \times 10^5 \text{ ms}$

2 left $0.443 \text{ } 443000$

d) $5.33 \times 10^4 \text{ hm} = 5.33 \times 10^7 \text{ dm}$ (e) $921 \text{ kL} = 9.21 \times 10^7 \text{ cL}$ (f) $48\,500 \text{ mm} = 48.5 \text{ m}$

$53300 \text{ } 53300000$ $921 \text{ } 92100000$