

## 8.2 Practice A [1.E2 Practice A (and NAQ.c.2)]

Date \_\_\_\_\_ Period \_\_\_\_\_

**DNM PRACTICE STANDARD - NAQ.c.1 - NO CALCULATOR ALLOWED**

Evaluate a numeric exponential power. Clearly show work (BY EXPRESSING POWER AS A PRODUCT OF FACTORS). Circle FINAL answer.

1)  $10^3$

$10 \cdot 10 \cdot 10 = \boxed{1,000}$

2)  $5^4$

$5 \cdot 5 \cdot 5 \cdot 5 = \boxed{625}$

3)  $(-2)^3$

$(-2) (-2) (-2) = \boxed{-8}$

4)  $(-5)^3$

$(-5) (-5) (-5) = \boxed{-125}$

**DNM - Required Work****PM PRACTICE STANDARD - NAQ.c.2 - NO CALCULATOR ALLOWED**

Evaluate numeric expressions with positive integer exponents, using the product property. Clearly show work (BY WRITING EXPONENTS WITH ARITHMETIC OPERATIONS). Simplify the exponent expression; then evaluate. Circle FINAL answer.

5)  $5 \cdot 5^3$

$5^{1+3} = 5^4 = \boxed{625}$

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

$2^{3+2} = 2^5 = \boxed{32}$

7)  $(-3)^2 \cdot (-3)^2$

$(-3)^{2+2} = (-3)^4 = (-3) (-3) (-3) (-3) = \boxed{81}$

8)  $-3 \cdot (-3)^3$

$(-3)^{1+3} = (-3)^4 = \boxed{81}$

**PM - Required Work****PRACTICE STANDARD - NAQ.c.3 - NO CALCULATOR ALLOWED**

Evaluate complex numeric expressions with whole number exponents demonstrating the ability to use the product, power, and quotient properties. CLEARLY SHOW ALL STEPS TO SIMPLIFY EXPONENTS. Simplify the exponent expression; then evaluate. Circle FINAL answer.

9)  $(5^2)^2 = 5^{2 \cdot 2} = 5^4 = \boxed{625}$

**Meets - Required Work**

10)  $(2^{-2})^{-2} = 2^{-2 \cdot -2} = 2^4 = \boxed{16}$

11)  $(10^8)^0 = 10^{8 \cdot 0} = 10^0 = \boxed{1}$

12)  $(2^2)^3 = 2^{2 \cdot 3} = 2^6 = \boxed{64}$

13)  $(10^3)^2 \cdot 4^2 =$

$= 10^{3 \cdot 2} \cdot 4^2$

$= 10^6 \cdot 16$

$= \boxed{16,000,000}$

(continued) PRACTICE STANDARD - NAQ.c.2 - NO CALCULATOR ALLOWED

$$14) \frac{(3^2)^4}{3^4} = \frac{3^{2 \cdot 4}}{3^4} = \frac{3^8}{3^4} = 3^{8-4} = 3^4 = \textcircled{81}$$

$$15) \left(\frac{2^3}{10}\right)^2 = \frac{2^{3 \cdot 2}}{10^2}$$

$$\frac{2^6}{10^2} = \frac{64}{100} = \frac{32}{50} = \boxed{\frac{16}{25}}$$

Meets -  
Required Work

$$16) \left(\frac{9^3}{9^2}\right)^2 = \frac{9^{3 \cdot 2}}{9^{2 \cdot 2}}$$

$$17) \left(\frac{2^8}{2^6}\right)^3 = \frac{2^{8 \cdot 3}}{2^{6 \cdot 3}}$$

$$\rightarrow \frac{9^6}{9^4} = 9^{6-4} = 9^2 = \textcircled{81}$$

$$\rightarrow \frac{2^{24}}{2^{18}} = 2^{24-18} = 2^6 = \textcircled{64}$$

SECTION 2 - CALCULATOR SECTION -

Simplify. Clearly show work. Circle Final Answer. Your answer should contain only positive exponents; variables in ABC order; and numbers left as improper fractions.

$$18) 6n^4 \cdot 3n^3 = 18n^{4+3} = \textcircled{18n^7}$$

$$19) 6n^4 \cdot 2n^2 \cdot 6n^3 = 72n^{4+2+3} = \textcircled{72n^9}$$

$$20) \frac{25x^8}{75x^5} = \frac{1x^{8-5}}{3} = \boxed{\frac{x^3}{3}}$$

$$21) \frac{60x^{10}}{9x^7} = \frac{20x^{10-7}}{3} = \boxed{\frac{20x^3}{3}}$$

$$22) (8n^3)^4 = 8^4 \cdot n^{3 \cdot 4} = 8^4 \cdot n^{12} = \textcircled{4096n^{12}}$$

$$23) (6x^2)^4 = 6^4 \cdot x^{2 \cdot 4} = 6^4 \cdot x^8 = \textcircled{1296x^8}$$

Required Work

$$24) (3x^4y^3)^4 = 3^4 x^{4 \cdot 4} y^{3 \cdot 4} = \textcircled{81x^{16}y^{12}}$$

$$25) (7xy^3)^4 = 7^4 x^4 y^{3 \cdot 4} = \textcircled{2401x^4y^{12}}$$