

Remember Order of operations



Algebra 1

Name _____

ID: 1

8.2 Warm Up

MEETS - NAQ.C

Date _____

Period _____

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.

1) $(10^2)^3 = 10^{2 \cdot 3} = 10^6 =$

$1,000,000$

2) $(2^2)^3 \cdot 2^2 = 2^{2 \cdot 3} \cdot 2^2$

$= 2^6 \cdot 2^2$
 $= 2^{6+2}$
 $= 2^8 = 256$

Youtube Video
 ODOs - 23min
 Total time - 38min

3) $10 \cdot (10^3)^3 = 10 \cdot 10^{3 \cdot 3}$

$= 10^1 \cdot 10^9$
 $= 10^{1+9}$
 $= 10^{10}$

$10,000,000,000$

4) $(2 \cdot 2^3)^2$

Do ()'s first

$= (2^{1+3})^2$

$(2^4)^2 =$

$2^{4 \cdot 2} =$

$2^8 = 256$

5) $\left(\frac{2^2}{10}\right)^3 = \frac{2^{2 \cdot 3}}{10^{1 \cdot 3}} = \frac{2^6}{10^3} = \frac{64}{1000}$

reduce

$\frac{32}{500} = \frac{16}{250} = \frac{8}{125}$

6) $\frac{(2^3)^4}{(2^2)^4} \xrightarrow[\text{den}]{\text{NUM}} \frac{2^{3 \cdot 4}}{2^{2 \cdot 4}} = \frac{2^{12}}{2^8}$

Reduce fraction w/ Exponent Rules

$\rightarrow 2^{12-8} = 2^4 = 16$

7) $\frac{(3^3)^4}{3^8} \xrightarrow[\text{den}]{\text{NUM}} \frac{3^{3 \cdot 4}}{3^8} = \frac{3^{12}}{3^8}$

$\rightarrow = 3^{12-8}$

$= 3^4$

81

8) $\left(\frac{2^4}{2^2}\right)^3$

2WAYS TO DO

* OPTION 1 Do ()'s

$(2^{4-2})^3 = (2^2)^3 = 2^{2 \cdot 3}$

$2^6 = 64$

OPTION 2 [DISTRIB 3]

$\frac{2^{4 \cdot 3}}{2^{2 \cdot 3}} = \frac{2^{12}}{2^6} = 2^{12-6} = 2^6 = 64$

164

Simplify fraction

DO THE OPTION YOU ARE MOST COMFORTABLE WITH

CH 8 EXPONENT-ALGEBRA TEST

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.

$$9) 8r^5 \cdot 8r^4 \cdot 3r^3 = 8 \cdot 8 \cdot 3 r^{5+4+3}$$

$$\boxed{192 R^9}$$

$$10) \left(\frac{8x^5}{2x^4}\right) = 4x^{5-4} = 4x^1 = \boxed{4x}$$

You don't need to show this step.

$$11) \left(\frac{2k^4}{8k^3}\right) = \frac{1}{4} k^{4-3} = \frac{1 \cdot k^1}{4} = \boxed{\frac{k}{4}}$$

Distribute

$$12) (2a^2b^4)^4 = 2^4 a^{2 \cdot 4} b^{4 \cdot 4}$$

$$= \boxed{16 a^8 b^{16}}$$

$$13) \left(\frac{4x^4y^3}{8y^4}\right) = \frac{1x^3y^{4-4}}{2} = \frac{x^3y^0}{2} = \boxed{\frac{x^3}{2}}$$

$$14) \left(\frac{45x^4y^3}{30xy^4}\right) = \frac{3x^{4-1}y^{3-4}}{2} = \frac{3x^3y^{-1}}{2} = \boxed{\frac{3x^3y^7}{2}}$$

Be careful!

EVEN

$$15) (-4x^2y^4)^2 = (-4)^2 x^{2 \cdot 2} y^{4 \cdot 2}$$

$$\boxed{16x^4y^8}$$

ODD

$$16) (-4ab^3)^3 = (-4)^3 a^{1 \cdot 3} b^{3 \cdot 3}$$

$$\boxed{-64 a^3 b^9}$$

$$17) \left(\frac{2xy^5}{10}\right)^3 = \frac{2^3 x^{1 \cdot 3} y^{5 \cdot 3}}{10^3}$$

$$= \frac{8x^3y^{15}}{1,000}$$

$$= \frac{2x^3y^{15}}{250}$$

$$18) \left(\frac{20x^{11}y^4}{25xy^3}\right) = \frac{4x^{11-1}y^{4-3}}{5}$$

$$= \boxed{\frac{4x^{10}y}{5}}$$

Incorrect on website

$$= \frac{x^3y^{15}}{125}$$