

Grade 9

Warm Up

$$1) \frac{3^2(5^0 + 2 + 2^2)}{2(5 + 4^2)}$$

$$2) \frac{4^2(3^4 \div 2^0)}{2^4(3^4 - 2^0)}$$

$$3) \frac{2^4(4^3 \div 2^2) - 4^0}{3(3^4 + 2^2)}$$

$$(-9)^{\textcircled{2}} \text{ Even}$$
$$+81$$

$$-(-3)^{\textcircled{3}} \text{ odd}$$
$$= - - 27$$
$$= +27$$

$$-4^2$$
$$= -16$$

$$-(-4)^0$$
$$= -1$$

$$(6)^0$$
$$= 1$$

$$(-8)^0$$
$$= 1$$



Exponent Law
Product of Powers



When Multiplying Common Bases with Exponents

We Add the Exponents

$$a^m \times a^n = a^{m+n}$$

$$5^2 \times 5^3 = 5^5$$

A graphic with a green background. The text "Section 2.4" is written in a large, yellow, 3D-style font. Below it, "Exponent Laws 1" is written in a purple, 3D-style font.

$$1) 3^2 \times 3^2 = 3^4$$

$$2) 2^2 \times 2^5 = 2^7$$

$$3) (-5)^2 \times (-5)^4 = (-5)^6$$

$$\begin{array}{l} \nearrow 5^2 \times (\nearrow 5)^4 = \text{Not Possible} \\ \text{Mr. Neg} \end{array}$$



Do you notice anything???

-

Write each of the following as a single power and then evaluate.

$$1) 7^2 \times 7^4 = 7^6$$

$$3) 4^5 \times 4^1 = 4^6$$

$$2) (-2)^7 \times (-2)^1 = (-2)^8$$



Exponent Law Quotient of Powers



When Dividing Common Bases with Exponents

We Subtract the Exponents

$$a^m \div a^n = a^{m-n}$$

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$$7^5 \div 7^2 = 7^3$$

What happens when we divide powers with the same base?

$$1) \quad \frac{2^6}{2^2} = 2^4$$

$$2) \frac{7^9}{7^4} = 7^5$$



Do you notice anything???

$$3) (-5)^8 \div (-5)^3 = (-5)^5$$

$$1) 9^7 \div 9^4 = 9^3$$

$$2) (-3)^5 \div (-3)^3 = (-3)^2$$

$$3) 8^6 \div 8^1 = 8^5$$

$$4) \frac{8^2 \times 8^5}{8^4} = \frac{8^7}{8^4} = 8^3$$

Class/Homework

Pages 76 and 77.

Questions:
4,5,6 and 7.

$$\frac{6^8 \times 6^7}{6}$$

$$5^8 \times 5^9 \times 5^3$$

$$2^3 + 2^2$$

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

$$(-8)^0$$

$$9^{12} \times 9^{10} \div 9^6$$

$$-15^0$$

Remember to always use BEDMAS when evaluating

Simplify using exponent rules, then evaluate.

$$1) 3^{10} \div 3^6 + 3^2$$

$$2) -2^3(2^9 \div 2^7) - 2^1$$



Thinking of
BEDMAS



Class/Homework

Page 76 & 77

- #4 (a, c, g, e)
- # 5 (a, c, g, e)
- # 6 (i, iv, b)
- # 8 (a, c, e)
- # 10 (a, c, e, g, i)
- # 11
- # 13 (a, d, e, g)

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