Warm up

Dec 15

1. Express as a single power.

a) $6^5 \times 6^{11} \div 6^8$

b) $\dfrac{(-5)^6 \times (-5)^9}{(-5)^7 \times (-5)^5}$

2. Evaluate

a) $-5^2(5^4 \div 5) - 5^3$

b) $\dfrac{8^{13} \times 8^{14}}{8^{15} \times 8^9}$

Warm up

1. Express as a single power.

a) $6^5 \times 6^{11} \div 6^8 = 6^{16} \div 6^8$

$= 6^8$

$\dfrac{6 \times 6 \times 6 \times \ldots}{6 \times 6 \times 6 \times \ldots}$

b) $\dfrac{(-5)^6 \times (-5)^9}{(-5)^7 \times (-5)^5} = \dfrac{(-5)^{15}}{(-5)^{12}}$

$= (-5)^3$

2. Evaluate

a) $-5^2(5^4 \div 5^1) - 5^3$ $= -5^2(5^3) - 5^3$ ①

$= -5^5 - 5^3$ ①

$= -3125 - 125$ ①

$= -3250$ ①

b) $\dfrac{8^{13} \times 8^{14}}{8^{15} \times 8^9}$ $= \dfrac{8^{27}}{8^{24}}$ ① ①

$= 8^3$ ①

$= 512$ ①

WARM-UP: **Simplify (as much as possible using exponent laws) then evaluate.**

$$\frac{(4^2)^4 \times (5^3)^2}{(5^2)^1 \times (4^3)^2} \times \frac{(4^3)^5 \times (5^3)^4}{(4^2)^6 \times (5^2)^5}$$

$= \dfrac{4^8 \times 5^6}{5^2 \times 4^6} \times \dfrac{4^{15} \times 5^{12}}{4^{12} \times 5^{10}}$

$= \dfrac{4^{23} \times 5^{18}}{5^{12} \times 4^{18}}$

$= 4^5 \times 5^6$

$= 1024 \times 15\,625$

$= 16\,000\,000$

Exponent Laws: Chapter 2

① Power of a Power

$(a^m)^n = a^{mn}$

$(2^3)^4 = 2^{12}$

② Power of a Quotient

$\left(\frac{2}{3}\right)^6 = \frac{2^6}{3^6}$ $\quad \frac{2}{3}^6 = \frac{2^6}{3}$

③ Power of a product

$(2^3 \cdot 3^4)^2 = 2^6 \cdot 3^8$

④ Zero exponent

$a^0 = 1$

⑤ Product Rule

$a^2 \cdot a^5 = a^7$

⑥ Quotient Rule

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

$\frac{6^{10}}{6^2} = 6^8$

Homework...

Exam Review Duotang

Chapter 2 Powers & Exponent Laws

EXAM PREPARATION: Chapter 2

MMS9:

PAGE 86: Study Guide
PAGE 87: #1, 3, 4, 6, 8, and 9
PAGE 88: #12, 13, 14, and 17
PAGE 89: #18, 19, 20, 21, 22, 23, 24, 26, and 27
PAGE 90: Practice Test (#1 to #6)

RULE OF THUMB: When you see an exponent law possibility, use it; otherwise, follow BEDMAS.