Name: _____ Date: _____

BLM 7–3

Section 7.1 Exponent Rules

1. Write each expression as a single power, then evaluate.

a) $3^2 \times 3^2$

b) $2^5 \times 2^2$

c) $(-5)^3 \times (-5)$

d) $(-1)^2 \times (-1)^3 \times (-1)^5$

e) $\left(-\frac{1}{4}\right)^2 \times \left(-\frac{1}{4}\right)^3$

f) $\left(\frac{2}{5}\right) \times \left(\frac{2}{5}\right)^2 \times \left(\frac{2}{5}\right)$

2. Write each expression as a single power, then evaluate.

a) $5^6 \div 5^3$ **b)** $8^4 \div 8^2$

c) $2^{10} \div 2^8$ **d)** $\frac{(-3)^7}{(-3)^4}$

e) $\frac{(-5)^8}{(-5)^6} \times (-5)^2$ **f)** $\frac{4^6}{4^4} \times 4^2$

3. Write each expression as a single power, then evaluate.

a) $(3^2)^3$ **b)** $(2^4)^2$

c) $[(-3)^2]^2$ **d)** $\left(\frac{1}{3^2}\right)^3$

e) $[(-1)^5]^6$ **f)** $\left(\frac{1}{4^2}\right)^2$

4. Show two ways of evaluating each expression.

a) $5^2 \times 5^3$ **b)** $\frac{2^5}{2^3} \times \frac{2^8}{2^4}$

c) $\frac{4^4}{4^3} \times 4^2$ **d)** $\frac{3^5 \times 3^3}{3^2 \times 3^2}$

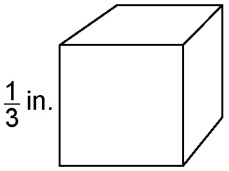
5. a) Write 7^6 as a product of two powers in two ways.

b) Write 5^3 as a quotient of two powers in two ways.

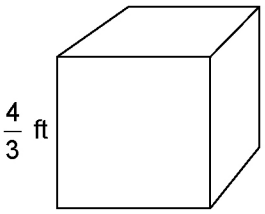
c) Write 3^{16} as a power of a power in two ways.

6. The volume of a cube is given by the formula $V = s^3$, where s represents the side length of the cube. Calculate the volume of each cube.

a)



b)



7. There are 3 ft in 1 yd. Express your answer to question 6, part b), in cubic yards.

8. Simplify each expression. Then, use a calculator to evaluate. Round your answers to two decimal places.

a) $6^{4.2} \times 6^{3.1}$ **b)** $3^{2.9} \times 3^{1.1}$

c) $(2)^{4.6} \times (2)^{3.1}$ **d)** $(4)^{2.3} \times (4)^{1.5}$

9. The probability of tossing a coin and getting heads is $\frac{1}{2}$. So, the probability of tossing two coins and getting two heads is $\left(\frac{1}{2}\right) \times \left(\frac{1}{2}\right)$ or $\left(\frac{1}{2}\right)^2$.

a) Write the probability of tossing two coins and getting two heads as a fraction.

b) What is the probability of tossing four coins and getting four heads?

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