

Name: _____

Date: _____

Math 9: Section 2.3 Combined Operations with Exponents:

1. Evaluate each of the following expressions (note: order of operation)

a) 2×3^2	b) $5 \times (-2)^3$	c) $(-10) \times (7)^2$
d) $5^2 \times (-2)^3$	e) $10^3 \times (6-4)^3$	f) $(2^4 - 8 \times 2)^0 \times 3^2 - 1$
g) $[4^2 - 8]^2 \times 2^2 - 4^2$	h) $4^2 \times 3^3 - 5^2 \times 2^2$	i) $(3 \times 4^0)^2 - 6 \times 3^3 \div 27$
j) $(-5-3)^2 - (4+4 \times 3)^2$	k) $[-(-3)^3 \times (-3)^2] - [(-2)^5 \div (-2)^3]^3$	l) $\frac{3^3 \times (5+1)^2 \times 4(-8)^0}{-7^0 \times 3^2 \times (8-3)^2}$
m) $11^2 - \left(5^2 - (3^1 \times 2^3) + 3\right)^2$	n) $2(16^2 - 121^0) - 5^3 \times (-2)^2$	o) $\frac{2^2 + (6-3) - 4(-10)^1}{-4^2 \times (-3)^2 - (5-4)^2}$

2. Given each of the following examples, indicate all the errors:

A $\begin{aligned} & (-5) \times (2)^3 \\ &= (-10)^3 \\ &= 1000 \end{aligned}$	b) $\begin{aligned} & (2 \times 5^0)^2 - 8 \times 2^4 \div 32 \\ &= (10)^2 - 8(16) \div 32 \\ &= 100 - 8(2) \\ &= 100 - 16 \\ &= 84 \end{aligned}$	c) $\begin{aligned} & \frac{3^3 \times (5+1)^2 \times 4(-8)^0}{-7^0 \times 3^2 \times (8-3)^2} \\ &= \frac{27 \times (6^2) \times (-32)^0}{-1 \times 9 \times (8^2 - 3^2)} \\ &= \frac{27 \times 36 \times (1)}{-9 \times (55)} \\ &= \frac{108}{-55} \end{aligned}$
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3. Indicate whether if the following statements below are either TRUE or FALSE for all cases. Explain your answer:

a) $a \times b^c = (ab)^c$	b) $a \times (-b)^3 = -ab^3$	c) $(a-b)^3 = a^3 - b^3$
d) $a(-b)^0 = (-ab)^0$	e) $(a-b)(a+b) = a^2 - b^2$	f) $a^2 + b^2 = a \times b$

4. John deposited \$250 in his bank account earning 5% interest each year. The interest is compounded annually and the value is given by the formula: $A = 250(1.05)^t$, where "t" is the number of years. How much will he have in 20 years?

5. A \$1000 investment is in a bank at 8% interest compounded 12 times a year. The amount of money in the investment after 5 years is given by the equation below. Find the total value of the investment after 5 years:

$$A = 1000 \times \left(1 + \frac{0.08}{12}\right)^{12 \times 5}$$

6. If a, b, and c are distinct positive integers such that $abc = 16$ then what is the largest possible value of: $a^b - b^c + c^a$?