SOL 2.3

September 16, 2020 10:49 AM

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 $= 18$	b) $5\times(-2)^3$ $=-40$	c) $(-10)\times(7)^2$ $=-490$
d) $5^2\times(-2)^3$ $5\times5\times(-2)\times(-2)\times(-2)$ $=-200$	e) $10^3\times(6-4)^3$ $=8000$	f) $(2^4-8\times2)^0\times3^2-1$ $1\times9-1$ $=8$
g) $\left[4^2-8\right]^2\times2^2-4^2$ $64\times4-16$ $256-16$ $=240$	h) $4^2\times3^3-5^2\times2^2$ $6\times27-25\times4$ $432-100$ $=332$	i) $(3\times4^0)^2-6\times3^3\div27$ $9-\frac{6\times27}{27}=3$
j) $(-5-3)^2-(4+4\times3)^2$ $64-(16)^2$ $64-256$ $=-192$	k) $\left[(-3)^3\times(-3)^2\right]-\left[(-2)^5\div(-2)^3\right]^3$ $[(-3)^5]-[(-2)^2]^3$ $=-243-(64)$ $=-307$	L) $\frac{3^3\times(5+1)^2\times4(-8)^0}{-7^0\times3^2\times(8-3)^2}$ $\frac{27\times36\times4}{-1\times9\times25}$ $=\frac{432}{-25}$
m) $11^2-\left(5^2-\left(3^1\times2^3\right)+3\right)^2$ $121-(25-24+3)^2$ $121-16$ $=105$	n) $2\left(16^2-121^0\right)-5^3\times(-2)^2$ $2(256-1)-125\times4$ $510-500$ $=10$	o) $\frac{2^2+(6-3)-4(-10)^1}{-4^2\times(-3)^2-(5-4)^2}$ $\frac{4+3+40}{-16\times9-1}$ $=\frac{47}{-145}$

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

A	b)	c)
$(-5)\times(2)^3$ $=(-10)^3$ $=1000$	$(2\times5^0)^2-8\times2^4\div32$ $=(10)^2-8(16)\div32$ $=100-8(2)$ $=100-16$ $=84$	$\frac{3^3\times(5+1)^2\times4(-8)^0}{-7^0\times3^2\times(8-3)^2}$ $=\frac{27\times(6^2)\times(-32)^0}{-1\times9\times(8^2-3^2)}$ $=\frac{27\times36\times(1)}{-9\times(55)}$ $=\frac{108}{-55}$

3. Indicate whether if the following statements below are either TRUE or FALSE for all cases. Explain your answer:

a) $a\times b^c=(ab)^c$ No! FALSE! $5\times6^2\neq(5\times6)^2$	b) $a\times(-b)^3=-ab^3$ TRUE $a\times(-b^3)=-ab^3$ ✓	c) $(a-b)^3=a^3-b^3$ FALSE! $(10-3)^3\neq10^3-3^3$ $343\neq1000-27$
d) $a(-b)^0=(-ab)^0$ $=$ FALSE! $a\neq1$	e) $(a-b)(a+b)=a^2-b^2$ TRUE	f) $a^2+b^2=a\times b$ FALSE!

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 20years?

5. A $1000 investment is 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:

$$A=1000\times\left(1+\frac{0.08}{12}\right)^{12\times5}$$

$=1000\times(1.00666666)^{60}$

$=1000\times(1.489845708)$

$=1489.85$

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

$a^2-b^2=(a+b)(a-b)$

$10^2-9^2=(10+9)(10-9)$

$100-81=(19)(1)$

$=19$ $=19$ //

$1000^2-999^2=(1000+999)(1000-999)$

$=(1999)(1)$

$=1999$ //.

$100 - 81 = (19)(1)$ $= 1999//.$

$= 19 \quad = 19//$

23×22

$(20+3)(20+2)$

	20	2
20	400	40
3	60	6

$= 506//$

$(a+b)(a-b) = a^2 - b^2$

	a	-b
a	a^2	$-ab$
b	ab	$-b^2$

$a^2 + ab - ab - b^2$