Unit 5 Exponents and Applications Study Guide

Math 7+ (Melott)

Evaluate each expression if a = 2.5, b = 1, c = 1.1

Round to nearest hundredth if necessary.

1. $6(ab)^1$

$6(2.5*1)^1$

$6*2.5^1$

$6*2.5$

15

2. $(ac)^0$

$(2.5*1.1)^0$

$= 1$ b/c anything to the zero $= 1$

3. $b(4a)^b$

$1*(4*2.5)^1$

$(4*2.5)^1$

10

4. b^bc^c

$1^1*1.1^{1.1}$

$= 1.1^{1.1}$

1.11

5. (c^0b^b)

(1^0*1^1)

$1*1$

1

6. $\frac{(b^5c^3)^7}{(a^5b^2c^1)^1}$ =

(I) $= \frac{b^{35}*c^{21}}{a^5b^2c^1}$ =

(II) $= \frac{b^{33}c^{20}}{a^5}$ = (III) $\frac{(1)^{33}*(1.1)^{20}}{(2.5)^5}$ =

(IV) $\frac{1*6.727499}{97.65625}$

(V) $= 0.07$

7. a^bc^{a+a+a}

$2.5^1*1.1^{(2.5+2.5+2.5)}$

$2.5*(1.1)^{7.5}$

$2.5*2.043831737 =$ **5.11**

Match the property with the appropriate letter. Each one is only used one time.

8. F (4 • 5)1.4 = 4(5 • 1.4)
9. D 2(1) = 2
10. B x(4 + 8) = x(4) + x(8)
11. E 0 + 3 = 3
12. C 1.2 + 7.1 + 3.3 = 3.3 + 7.1 + 1.2
13. A 111(0) = 0

A. multiplicative property of zero
B. distributive property
C. commutative property
D. identity property
E. zero property of addition
F. associative property

14. Simplify: 3^4

$3 \cdot 3 \cdot 3 \cdot 3 = 81$

15. Simplify: $64^{\frac{5}{2}}$

$\sqrt[2]{64^5}$

$8^5 = \boxed{32,768}$

16. Solve for x: $\frac{32^{2x-2}}{2^{3x+2}} = 2^{2x-1} \times 16^x$

$\frac{2^{5(2x-2)}}{2^{3x+2}} = 2^{2x-1} \cdot 2^{4x}$

$10x - 10 - (3x+2) = 2x - 1 + 4x$

$10x - 10 - 3x - 2 = 2x - 1 + 4x$

$7x - 12 = 6x - 1$

$-6x \quad -6x$

$x - 12 = -1$

$+12 \quad +12$

$x = 11$

11.

Divide. Leave your final answer in scientific notation. No negative exponents in the denominator.

$(3.45*10^5)/(6.7*10^{-2})$

$3.45 \div 6.7 = 0.514925373 \rightarrow$

5.15×10^{-1}

$10^{5--2} = 10^7$

$5.15 * 10^6$

$5.15 \times 10^{-1} * 10^7$