Laws of Exponents

I. **Use Casio ClassWiz Emulator Fx-570/991EX to find the values of the following:**

1. Exponential Law 1 : $x^0 = \cdots$
   a. 16^0
   b. $16x^0$
   c. $(16+x)^0$
   d. $(-16)^0$
   e. -16^0

2. Exponential Law 2 : $x^m \times x^n = \cdots$
   a. $2^3 \times 2^7 = 2^{3+7}$
   b. $2^3 \times 2^4 = 2^7$
   c. $11^3 \times 11^5 = 11^8$
   d. $7^3 \times 7^2 = 7^5$

3. Exponential Law 3 : $x^{-n} = \ldots$
   Investigate :
   a. $2^{-2} = \frac{1}{2^2}$
   b. $2^{-7} = \frac{1}{2^7}$
   c. $2^{-2} = \frac{1}{2^2}$
   d. $\left(\frac{2}{3}\right)^{-3} = \left(\frac{3}{2}\right)^3 = \frac{27}{8}$

4. Exponential Law 4 : $x^m : x^n = \cdots$
   a. $\frac{5^7}{5^3} = 5^4$
   b. $7^7 : 7^2 = 7^5$
   c. $\frac{11^{13}}{11^9} = 11^4$

5. Exponential Law 5 : $(xy)^n = \cdots$
   a. $(2.3)^4 = 2^4 \times 3^4$
   b. $(5.3)^2 = 5^2 \times 3^2$
   c. $(7.2)^{-3} = 7^{-3} \times 2^{-3}$

6. Exponential Law 6 : $(x^m)^n = \cdots$
   a. $(2^2)^3 = 2^6$
   b. $(3^2)^4 = 3^8$
   c. $(5^3)^5 = 5^{15}$

II. **Simplify,**

a. $(x^3)^4$
b. $2x^3 y \times 5x^2 y^7$
c. $\frac{a^{3x}}{a^4}$
d. $(2x^3 y)^4$
e. $(xyz)^0$

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