

Indices quiz

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6:52 PM

Simplify the following:

$$\textcircled{1} \quad x^5 \times x^3 = x^{5+3} = x^8$$

$$\textcircled{2} \quad 4x^3 \times 6x^2 = 24x^5$$

$$\textcircled{3} \quad 7x^3 \times 8y^2 = 56x^3y^2$$

$$\textcircled{4} \quad 9a^2b^3 \times 10a^3b^4 = 90a^5b^7$$

$$\textcircled{5} \quad \frac{x^5}{x^3} = x^{5-3} = x^2$$

$$\textcircled{6} \quad \frac{5x^2}{10x} = \frac{1}{2}x^{2-1} = \frac{1}{2}x = \frac{x}{2}$$

$$\textcircled{7} \quad \frac{24x^2}{12x^5} = \frac{2}{1}x^{2-5} = \frac{2}{1}x^{-3} = 2x^{-3} = \frac{2}{x^3}$$

$$\textcircled{8} \quad \frac{12x^3y^5}{3x^2y^6} = 4xy^{-1} = \frac{4x}{y}$$

$$\textcircled{9} \quad x^0 = 1$$

$$\textcircled{10} \quad 7x^0 = 7 \times 1 = 7$$

$$\textcircled{11} \quad (8x)^0 = 1$$

$$\textcircled{12} \quad x^5y^0z^4 = x^5z^4$$

$$\textcircled{13} \quad \frac{2x^5 \times 4x^3}{5x^2 \times 3y} = \frac{8x^8}{15x^2y} = \frac{8x^6}{15y}$$

$$(14) (x^2 y^3)^4 = x^8 y^{12}$$

$$(15) \left(\frac{x^2}{y^3}\right)^4 = \frac{x^8}{y^{12}}$$

$$(16) \left(\frac{3x^2}{5y^4}\right)^3 = \frac{3^3 x^6}{5^3 y^{12}} = \frac{27x^6}{125y^{12}}$$

$$(17) \frac{4}{x^{-2}} = 4x^2$$

$$(18) \left(\frac{x}{y}\right)^{-1} = \frac{x^{-1}}{y^{-1}} = \frac{y}{x}$$

$$(19) \left(\frac{x^2}{y^3}\right)^{-3} = \frac{x^{-6}}{y^{-9}} = \frac{y^9}{x^6}$$

$$(20) \text{ Write in index form: } \sqrt{x} = x^{\frac{1}{2}}$$

$$(21) \text{ Write in index form: } \sqrt[3]{x^4} = x^{\frac{4}{3}}$$

(22) Simplify the following into one term of base 5.

$$5^2 \times 25^2 = 5^2 \times (5^2)^2 = 5^2 \times 5^4$$

$$\text{Hint: } 25 = 5^2 \qquad = 5^6$$