Indices Quiz Answers

Simplify the following:

1) $x^5 \times x^3 = x^{5+3} = x^8$
2) $4x^3 \times 6x^2 = 24x^5$
3) $7x^3 \times 8y^2 = 56x^3y^2$
4) $9a^2b^3 \times 10a^3b^4 = 90a^5b^7$
5) $\frac{x^5}{x^3} = x^{5-3} = x^2$
6) $\frac{5x^2}{10x} = \frac{1}{2}x^{2-1} = \frac{1}{2}x = \frac{x}{2}$
7) $\frac{4x^2}{2x^5} = \frac{2}{1}x^{2-5} = \frac{2}{1}x^{-3} = 2x^{-3} = \frac{2}{x^3}$
8) $\frac{12x^3y^5}{3x^2y^6} = 4xy^{-1} = \frac{4x}{y}$
9) $x^0 = 1$
10) $7x^0 = 7 \times 1 = 7$
11) $(8x)^0 = 1$
12) $x^5y^0z^4 = x^5z^4$
13) $\frac{2x^5 \times 4x^3}{5x^2 \times 3y} = \frac{8x^8}{15x^{2y}} = \frac{8x^6}{15y}$
14) $(x^2y^3)^4 = x^8y^{12}$
15) $\left(\frac{x^2}{y^3}\right)^4 = \frac{x^8}{y^{12}}$
16) $\left(\frac{3x^2}{5y^4}\right)^3 = \frac{3^3x^6}{5^3y^{12}} = \frac{27x^6}{125y^{12}}$
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) Write in index form: $\sqrt{x} = x^{\frac{1}{2}}$
21) Write in index form: $\sqrt[3]{x^4} = x^{\frac{4}{3}}$
22) Simplify the following into one term of base 5: $5^2 \times 25^2 = 5^2 \times (5^2)^2 = 5^2 \times 5^4 = 5^6$