

Solutions

2.1 Same base: add indices. $2^3 \times 2^4 = 2^7 = 128$.

2.2 $2^3 = 2 \times 2 \times 2 = 8$.

2.3 Move the decimal point five places left: $7.2 \times 10^{-5} = 0.000072$.

2.4 $16 = 2^4$, so $16^{3/4} = 2^3 = 8$.

2.5 A negative index gives a reciprocal: $2^{-3} = 1/8 = 0.125$.

3.1 False. At $a=2$, $a^2 + a^3 = 4 + 8 = 12$, while $a^5 = 32$. Adding exponents applies to multiplication of powers with the same base.

Local review guidance: show the chosen method; give the checked result; explain the condition or failed shortcut. This is authored classroom guidance.