Integer and fractional index laws

6 questions | 13 marks

Equivalent correct methods earn the corresponding marks.

1. Simplify x^4x^6. [2 marks]

Add indices for the common-base product: $4 + 6 = 10$.

Answer: x^{10}

2. Simplify a^8/a^3, $a \neq 0$. [2 marks]

$8 - 3 = 5$.

Answer: a^5

3. Simplify $(m^3)^4$. [2 marks]

Power of a power: $3 \times 4 = 12$.

Answer: m^{12}

4. Evaluate 5^{-2}. [2 marks]

$5^{-2} = 1/5^2 = 1/25$.

Answer: $1/25$

5. Evaluate $81^{3/4}$. [2 marks]

$81^{1/4} = 3$, so $81^{3/4} = 3^3 = 27$.

Answer: 27

6. Simplify $\frac{p^{-2}p^5}{p^4}$ for $p \neq 0$, using positive indices. [3 marks]

$-2 + 5 - 4 = -1$, so $p^{-1} = 1/p$.

Answer: $1/p$