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 $\frac{a^8}{a^3}$, $a \neq 0$. [2 marks]

$8-3=5$.

Answer: a^5

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

Power of a power: $3\times4=12$.

Answer: m^{12}

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

$5^{-2}=\frac{1}{5^2}=\frac{1}{25}$.

Answer: $\frac{1}{25}$

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

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

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 $p^{-1}=\frac{1}{p}$.

Answer: $\frac{1}{p}$