Integer index laws

6 questions | 12 marks

Equivalent correct methods earn the corresponding marks.

1. Evaluate 4^3. [1 mark]

$4^3 = 4 \times 4 \times 4 = 64$.

Answer: 64

2. Write $7^2 \times 7^4$ as one power. [2 marks]

The same-base product has exponent $2 + 4 = 6$.

Answer: 7^6

3. Simplify $10^8 \div 10^5$ and evaluate. [2 marks]

Subtract the exponents: $8 - 5 = 3$.

$10^3 = 1000$.

Answer: $10^3 = 1000$

4. Write $(6^3)^2$ as one power. [2 marks]

Multiply the exponents: $3 \times 2 = 6$.

Answer: 6^6

5. Simplify $2^4 \times 2^3 \div 2^5$. [2 marks]

Combine exponents: $4 + 3 - 5 = 2$.

$2^2 = 4$.

Answer: 4

6. Mia says $3^2 + 3^3 = 3^5$. Explain the mistake and give the correct sum. [3 marks]

The expression adds powers rather than multiplying them.

$3^2 + 3^3 = 9 + 27 = 36$, not $3^5 = 243$.

Answer: 36