Index laws with variables

6 questions | 12 marks

Equivalent correct methods earn the corresponding marks.

1. Simplify x^3x^5. [1 mark]

$x^{3+5} = x^8$.

Answer: x^8

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

$2 \times 5 = 10$ and $a^{2+4} = a^6$.

Answer: $10a^6$

3. Simplify $(3x^2)^3$. [2 marks]

$3^3 = 27$ and $(x^2)^3 = x^6$.

Answer: $27x^6$

4. Write $\frac{8p^2}{4p^5}$ with positive exponents, for $p \neq 0$. [2 marks]

The coefficient is 2 and $p^{2-5} = p^{-3}$.

$2p^{-3} = \frac{2}{p^3}$.

Answer: $\frac{2}{p^3}$

5. Simplify $\frac{15x^4y^3}{5xy^2}$ for $x, y \neq 0$. [2 marks]

$15 \div 5 = 3$, $x^{4-1} = x^3$, $y^{3-2} = y$.

Answer: $3x^3y$

6. A student writes $(2xy)^3 = 2x^3y^3$. Correct the answer and explain. [3 marks]

The 2 is inside the brackets, so it must also be cubed.

$2^3x^3y^3 = 8x^3y^3$.

Answer: $8x^3y^3$