Simplifying algebraic expressions

6 questions | 12 marks

Equivalent correct methods earn the corresponding marks.

1. Simplify $3x + 8x$. [1 mark]

$(3 + 8)x = 11x$.

Answer: $11x$

2. Simplify $9a - 4 + 2a + 7$. [2 marks]

$9a + 2a = 11a$ and $-4 + 7 = 3$.

Answer: $11a + 3$

3. Simplify $5m - 2n - 8m + 6n$. [2 marks]

$5m - 8m = -3m$; $-2n + 6n = 4n$.

Answer: $-3m + 4n$

4. Simplify $4x^2 + 3x - 2x^2 + 5x$. [2 marks]

Collect squares separately from first powers: $(4 - 2)x^2 + (3 + 5)x$.

Answer: $2x^2 + 8x$

5. Simplify $3p^2 \times (-2p)$. [2 marks]

$3(-2) = -6$ and $p^2 p = p^3$.

Answer: $-6p^3$

6. Simplify $\frac{18x^3y}{6xy}$ for $x, y \neq 0$. [3 marks]

$18 \div 6 = 3$, $x^{3-1} = x^2$, $\frac{y}{y} = 1$.

The original denominator excludes zero for either variable.

Answer: $3x^2$