

GCSE Maths – Algebra

Collecting Like Terms

Worksheet

WORKED SOLUTIONS

This worksheet will show you how to work out different types of collecting like terms questions. Each section contains a worked example, a question with hints and then questions for you to work through on your own.

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Section A

Worked Example

Simplify the expression $7x + 8y - 9x + 3x^2 + 2y - 10$

Step 1: Identify the 'like terms' to make it clear which terms we can combine.

 $7x + 8y - 9x + 3x^2 + 2y - 10$

Here, we have four types of terms: the 'x' term, the 'y' term, the 'x²' term and the constant term.

Step 2: Rearrange the expression so the like terms can be placed together.

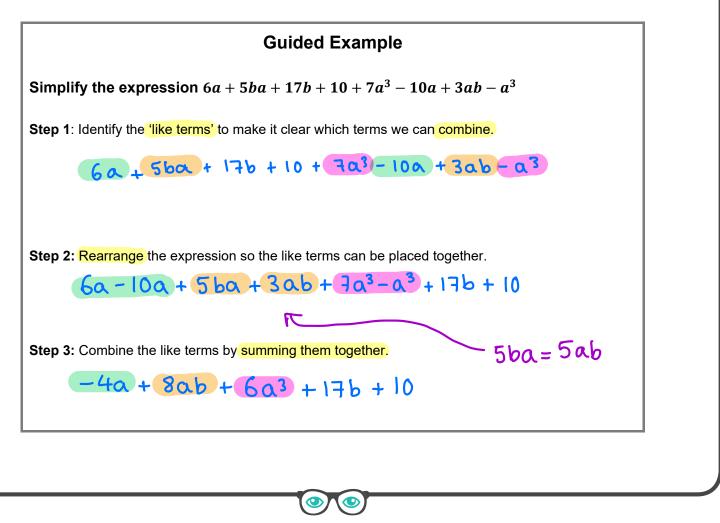
 $+7x - 9x + 8y + 2y + 3x^2 - 10$

Remember to include the invisible + sign that is front of the first term, i.e., the '7x' in this example.

Step 3: Combine the like terms by summing them together.

+7x - 9x + 8y + 2y + 3x² - 10⇒ -2x + 10y + 3x² - 10

So, the final answer is $-2x + 10y + 3x^2 - 10$







Now it's your turn!

If you get stuck, look back at the worked and guided examples.

1. Simplify the following algebraic expressions: a) 5p + 7q + 10 + 15p - 7q + 8t - 35p+7q+10+15p-7q+8 t-3 5p + 15p + 7q - 7q + 10 - 3 + 8t20p + 7 + 8tThe q terms have 20p + 7 + 8tbeen eliminated. b) 16 + 8d + 9e - 82 + 7de + 5 - d16 + 8d +9e - 82 + 7de + 5 - d 16 + 5 - 82 + 8d - d + 9e + 7de-61 + 7d + 9e + 7de-61 + 7d + 9e + 7dec) 92 + 7ab + 16 + 8abc + 9ab - bc92 + 7ab + 16 + 8abc + 9ab - bc92 + 16 + 7ab + 9ab + 8abc - bc108 + 16ab + 8abc - bc 108 + 16ab + 8abc - bcd) $34ab + 17 + 52ab + 18ab^2 + 62 + 19a^2b$ 34ab + 17 + 52ab + 18ab2 + 62 + 19a2b $34ab + 52ab + 17 + 62 + 18ab^2 + 19a^2b$ $86ab + 79 + 18ab^2 + 19a^2b$ 86ab + 79 + 18ab² + 19a²b e) 62xy + 17xyz + 64 + xy - 18xyz + 9y + 21 + 92yz62xy + 17xyz + 64 + xy - 18xyz + 9y + 21 + 92yz 62xy + xy) + 17xy2 - 18xy2 + 64 + 21+ 9y + 92y2 63xy-xyz + 85 + 9y + 92yz 63xy - xyz + 85 + 9y + 92yzf) $x^2 - xy^2 + xy - y^2 + 1 - x^2 + yx$ Note: yx = xy $x^2 - xy^2 + xy - y^2 + 1 - x^2 + xy$ $x^2 - x^2 + xy + xy - xy^2 - y^2 + 1$ $2xy - xy^2 - y^2 + 1$ $2xy - xy^2 - y^2 + 1$ \rightarrow (3ab)² = 3²a²b² = 9a²b² g) $23 - a + b - ab + b^2 - a^2b^2 - 2a - (3ab)^2$ $23 - a + b - ab + b^2 - a^2b^2 - 2a - (3ab)^2$ $23 - a + b - ab + b^2 - a^2 b^2 - 2a - 9a^2 b^2$ $23 - a - 2a - a^2b^2 - 9a^2b^2 + b - ab + b^2$ $23 - 3a - 10a^2b^2 + b - ab + b^2$ $23 - 3a - 10a^2b^2 + b - ab + b^2$ <u>@0</u>@

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