

Questions: Completing the square

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Summary

A selection of questions for the study guide on completing the square.

Before attempting these questions, it is highly recommended that you read [Guide: Completing the square](#).

Q1

Express each of the following quadratic expressions in the form $(x + p)^2 + q$, where p, q are numbers.

- 1.1. $x^2 - 2x + 15$.
- 1.2. $y^2 - 6y + 8$.
- 1.3. $x^2 + 8x + 20$.
- 1.4. $m^2 - 26m + 25$
- 1.5. $n^2 + 6n + 50$.
- 1.6. $x^2 + 2x + 144$.
- 1.7. $h^2 - 3h - 3$.
- 1.8. $x^2 + x - 3$.
- 1.9. $x^2 - 13x + 43$.
- 1.10. $y^2 - 8y + 16$.
- 1.11. $x^2 + 13x + 9$.
- 1.12. $m^2 + 3m + 33$.

Q2

Express each of the following quadratic expressions in the form $a(x + p)^2 + q$, where a, p, q are numbers.

- 2.1. $2x^2 - 12x + 14$.

- 2.2. $5y^2 - 10y + 4$.
2.3. $4x^2 + 32x + 68$.
2.4. $2m^2 + 2m + 2$
2.5. $3x^2 - 2x + 5$.
2.6. $4x^2 - 4x + 1$.
2.7. $2h^2 - 3h + 1$.
2.8. $3x^2 + 5x + 2$.

Q3

Using your working from Q1 and Q2, solve the following quadratic equations.

- 3.1. $y^2 - 6y + 8 = 0$.
3.2. $m^2 - 26m + 25 = 0$.
3.3. $x^2 + 8x + 20 = 0$.
3.4. $4x^2 - 4x + 1 = 0$.
3.5. $4x^2 + 32x + 68 = 0$.
3.6. $3x^2 + 5x + 2 = 0$.

[After attempting the questions above, please click this link to find the answers.](#)

Version history and licensing

v1.0: initial version created 09/24 by tdhc.

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