

# 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.  $3x^2 + 5x + 2 = 0$ .

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

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

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