RevEasy

Year 10/11 Mathematics

Completing The Square

You do not need any additional materials.

INSTRUCTIONS

- Answer all questions.
- Use a black or dark blue pen. You may use an HB pencil for any diagrams or graphs.
- Write your name, centre number and candidate number in the boxes at the top of the page.
- Write your answer to each question in the space provided.
- Do not use an erasable pen or correction fluid.

INFORMATION

- Please do not reproduce this practice quiz. All rights belong exclusively to RevEasy.
- If you read these instructions, draw a star at the top-right corner of this page.

Q1. (a) Write $x^2 - 6x + 1$ in the form $(x + a)^2 + b$ where a and b are integers.

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph $y = x^2 - 6x + 1$

(a) .....

(b) .....

Q2. By completing the square, find the coordinates of the turning point of the curve with the equation $y = x^2 + 3x - 7$, showing all your working.

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Q3. (a) Write $x^2 - 2x - 1$ in the form $(x + a)^2 + b$ where a and b are integers.

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph $y = x^2 - 2x - 1$

(a) .....

(b) .....

Q4. By completing the square, find the coordinates of the turning point of the curve with the equation $y = x^2 + 10x - 8$, showing all your working.

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Q5. (a) Write $x^2 + 8x + 3$ in the form $(x + a)^2 + b$ where a and b are integers.

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph $y = x^2 + 8x + 3$

(a) .....

(b) .....

Q6. (a) Write $x^2 + 10x - 8$ in the form $(x + a)^2 + b$ where a and b are integers.

(b) Hence, or otherwise, write down the coordinates of the turning point of the graph $y = x^2 + 10x - 8$

(a) .....

(b) .....

Q7. (a) Write $2x^2 - 12x + 23$ in the form $a(x + b)^2 + c$ where a and b are integers.
(b) Hence, or otherwise, write down the coordinates of the turning point of the graph $y = 2x^2 - 12x + 23$

(a) .....

(b) .....

Q8. (a) Write $3x^2 - 6x + 6$ in the form $(x + a)^2 + b$ where a and b are integers.
(b) Hence, or otherwise, write down the coordinates of the turning point of the graph $y = 3x^2 - 6x + 6$

(a) .....

(b) .....

Q9. By completing the square, solve $x^2 + 10x - 3 = 0$, giving your answers in surd form.

$x =$ .....

Q10. By completing the square, solve $x^2 + 5x + 4 = 0$, giving your answers in surd form.

$x =$ .....

ANSWERS

Q1.

$(a)\ (x-3)^2-8$
$(b)\ (3,-8)$

Q2.

$(-1.5,-9.25)$

Q3.

$(a)\ (x-1)^2-2$
$(b)\ (1,-2)$

Q4.

$(-5,-33)$

Q5.

$(a)\ (x+4)^2-13$
$(b)\ (-4,-13)$

Q6.

$(a)\ (x+5)^2-33$
$(b)\ (-5,-33)$

Q7.

$(a)\ 2(x-3)^2+5$
$(b)\ (3,5)$

Q8.

$(a)\ 3(x-1)^2+3$
$(b)\ (1,3)$

Q9.

$x=-5\pm 2\sqrt{7}$

Q10.

$x=-2.5\pm\sqrt{2}$