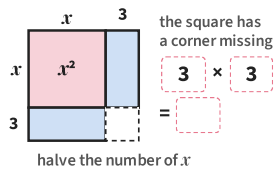


Completing the Square

1

Complete the square for

$$x^2 + 6x + 5$$



$$(x + \boxed{3})^2 - \boxed{4} + 5$$

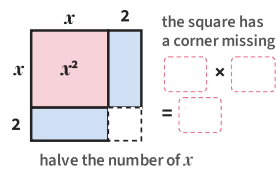
Turning point (,)

Answer _____

2

Complete the square for

$$x^2 + 4x + 7$$



$$(x + \boxed{2})^2 - \boxed{4} + 7$$

Turning point (,)

Answer _____

3

Complete the square for

$$x^2 + 8x + 10$$

halve the number of x

$$(\boxed{} + \boxed{})^2 - \boxed{} + 10$$

Turning point (,)

Answer _____

4

Complete the square for

$$x^2 - 6x + 2$$

halve the number of x

$$(\boxed{} - \boxed{})^2 - \boxed{} + 2$$

Turning point (,)

Answer _____

5

Complete the square for

$$x^2 + 10x - 3$$

$$(\boxed{} + \boxed{})^2 - \boxed{} - 3$$

Turning point (,)

Answer _____

6

Find the smallest value of

$$x^2 - 8x + 20 \text{ and the value of } x \text{ that gives it.}$$

Answer _____

7

Solve $x^2 + 4x - 5 = 0$ by completing the square.

Answer _____

8

Write $2x^2 + 8x + 3$ in the form $a(x + p)^2 + q$.

Answer _____

Completing the Square *further practice*

9

Write $x^2 + 5x + 2$ in the form $(x + p)^2 + q$.

Answer _____

10

The graph of $y = x^2 + bx + c$ has its turning point at $(4, -3)$. Find the values of b and c .

Answer _____

11

Which has the smaller minimum value, $x^2 - 6x + 11$ or $x^2 + 4x + 5$? Show how you know.

Answer _____

12

The cost, $\pounds C$, of running a bakery oven for a day at setting s is $C = s^2 - 14s + 60$. Find the setting that makes the cost as low as possible, and that lowest cost.

Answer _____

13

A rectangle is x cm wide and $(x + 6)$ cm long. Its area is 11 cm^2 . Complete the square to find x . Give your answer in surd form.

Answer _____

14

Write $3x^2 - 12x + 7$ in the form $a(x + p)^2 + q$. Then write down the turning point of $y = 3x^2 - 12x + 7$.

Answer _____

15

A rectangular flower bed has 24 m of edging all the way round. Its width is x m. Show that its area is $(12x - x^2) \text{ m}^2$. Then complete the square to find the largest area it can have.

Answer _____

16

Priya says $x^2 - 4x + 9 = 0$ has no solutions. Use completing the square to explain why she is right.

Answer _____