GCSE HIGHER · REVISION MAT 4

Solving quadratic equations

1 Solve

$$4x^2 = 100$$

2 Solve

$$x^2 + 10x + 21 = 0$$

3 Show that $x = -2$ is a solution of

$$x^2 + 5x + 6 = 0$$

Find the other solution.

4 I square a number and subtract 3 times the number.

The answer is 28.

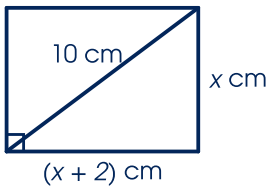
Find the two possible numbers.

5 Use the quadratic formula to show that the solutions of

$$2x^2 + 3x - 1 = 0$$

are $x = \frac{-3 \pm \sqrt{17}}{4}$.

6 One side of a rectangle is 2 cm longer than the other.



Find the perimeter of the rectangle.

7 Tom says

$$6x^2 + x - 2 = (6x - 2)(x + 1)$$

Show that Tom is wrong.

Solve $6x^2 + x - 2 = 0$.

8 The graphs of $y = x^2 - 3x$ and $y = 2x - 4$ intersect at two points.

Find their coordinates.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 4

Solving quadratic equations

1 $x^2 = 25$

$x = 5$ or $x = -5$

2 $(x + 3)(x + 7) = 0$

$x = -3$ or $x = -7$

3 $4 - 10 + 6 = 0$ ✓

$(x + 2)(x + 3) = 0$

$x = -3$

4 $n^2 - 3n = 28$

$n^2 - 3n - 28 = 0$

$(n - 7)(n + 4) = 0$

7 or –4

5 $a = 2, b = 3, c = -1$

$b^2 - 4ac = 9 + 8 = 17$

$$x = \frac{-3 \pm \sqrt{17}}{4}$$

6 $x^2 + (x + 2)^2 = 100$

$x^2 + 2x - 48 = 0$

$(x + 8)(x - 6) = 0 \Rightarrow x = 6$

Sides 6 cm and 8 cm

Perimeter = 28 cm

7 $(6x - 2)(x + 1) = 6x^2 + 4x - 2$ ×

$(2x - 1)(3x + 2) = 0$

$$x = \frac{1}{2} \text{ or } x = -\frac{2}{3}$$

8 $x^2 - 3x = 2x - 4$

$x^2 - 5x + 4 = 0 \Rightarrow x = 1$ or 4

(1, –2) and (4, 4)

Mr&Mrs MATHS