GCSE HIGHER · REVISION MAT 5

Forming and solving equations

1 A rectangle measures $(x + 3)$ cm by 5 cm.

Its perimeter is 24 cm.

Find the value of x.

2 The angles around a point are

$$2x°,\ 3x°,\ 4x° \text{ and } 90°$$

Find the value of x.

3 Nina says the solution of

$$3(x - 2) = 2x + 5$$

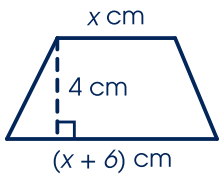
is $x = 3$. Show that Nina is wrong.

4 Phone plan A: £15 plus 5p per minute.

Phone plan B: £9 plus 8p per minute.

For how many minutes do both plans cost the same?

5 The area of this trapezium is 44 cm².



Show that $x = 8$.

6 A square lawn of side x m has a path 1 m wide all around it.

The area of the path equals the area of the lawn.

Find x to 2 decimal places.

7 A number plus its reciprocal equals $\frac{10}{3}$.

Show that $3x^2 - 10x + 3 = 0$.

Find the two possible numbers.

8 A rectangle is 7 cm longer than it is wide and has area 60 cm².

A square has the same perimeter.

How much larger is the area of the square?

Mr&Mrs MATHS

ANSWERS · REVISION MAT 5

Forming and solving equations

1 $2(x + 3) + 10 = 24$

$2x + 16 = 24$

$x = 4$

2 $9x + 90 = 360$

$9x = 270$

$x = 30$

3 $3x - 6 = 2x + 5$

$x = 11$, not 3

(Check: $x = 3$ gives $3 \neq 11$)

4 $1500 + 5m = 900 + 8m$

$600 = 3m$

$m = 200$ minutes

5 $\frac{1}{2}(x + x + 6) \times 4 = 44$

$2(2x + 6) = 44$

$4x + 12 = 44$

$x = 8$

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

$x^2 - 4x - 4 = 0$

$x = \frac{4 + \sqrt{32}}{2}$

$x = 4.83$

7 $x + \frac{1}{x} = \frac{10}{3}$

$3x^2 + 3 = 10x$

$3x^2 - 10x + 3 = 0$

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

$x = 3$ or $x = \frac{1}{3}$

8 $w(w + 7) = 60 \Rightarrow w = 5$

5 by 12, perimeter 34 cm

Square side 8.5 cm, area 72.25 cm²

Difference = 12.25 cm²

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