GCSE HIGHER · REVISION MAT 4

Forming and solving equations

1 A number is doubled and then 9 is added.

The result is 35.

Find the number.

2 The angles of a quadrilateral are

$x°$, $2x°$, $3x°$ and $90°$

Find the value of x.

3 Two numbers add to 50.

One is 14 more than the other.

Show that the smaller number is 18.

4 Sophie buys 3 cakes and a drink for £7.40.

A cake costs 60p more than the drink.

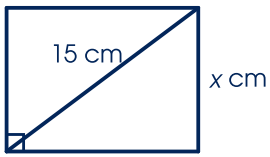
Find the cost of a cake.

5 Pete's mum is 4 times his age.

In 12 years she will be twice his age.

Show that Pete is 6 now.

6 The length of a rectangle is 3 cm more than its width.



Find the area of the rectangle.

7 Rana walks 6 km at x km/h, then cycles 15 km at $(x + 7)$ km/h.

The whole trip takes 2 hours.

Show that $2x^2 - 7x - 42 = 0$.

8 The sum of the integers from 1 to n is

$$\frac{n(n+1)}{2}$$

How many integers, starting from 1, add up to 210?

Mr&Mrs MATHS

ANSWERS · REVISION MAT 4

Forming and solving equations

1 $2n + 9 = 35$

$n = 13$

2 $6x + 90 = 360$

$6x = 270$

$x = 45$

3 $x + (x + 14) = 50$

$2x = 36$

$x = 18$

4 $3(d + 0.6) + d = 7.4$

$4d + 1.8 = 7.4 \Rightarrow d = 1.40$

A cake costs £2.00

5 $4x + 12 = 2(x + 12)$

$4x + 12 = 2x + 24$

$2x = 12$

$x = 6$

6 $x^2 + (x + 3)^2 = 225$

$2x^2 + 6x - 216 = 0$

$x^2 + 3x - 108 = 0$

$(x + 12)(x - 9) = 0 \Rightarrow x = 9$

Area = $9 \times 12 = 108$ cm^2

7 $\frac{6}{x} + \frac{15}{x + 7} = 2$

$6(x + 7) + 15x = 2x(x + 7)$

$21x + 42 = 2x^2 + 14x$

$2x^2 - 7x - 42 = 0$

8 $\frac{n(n + 1)}{2} = 210$

$n^2 + n - 420 = 0$

$(n + 21)(n - 20) = 0$

$n = 20$