GCSE HIGHER · REVISION MAT 2

Forming and solving equations

1 A pen costs p pence.

A ruler costs 25p more than the pen.

Together they cost 115p.

Find the value of p.

2 An equilateral triangle has sides of $(2x + 3)$ cm.

Its perimeter is 39 cm.

Find the value of x.

3 Tom says, 'Doubling my number and adding 6 gives the same as multiplying it by 5 and subtracting 9.'

Show that his number is 5.

4 An adult ticket costs £x.

A child ticket costs £4 less.

2 adult and 3 child tickets cost £58.

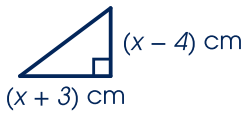
Find the cost of 1 adult and 1 child ticket.

5 In an isosceles triangle the base angles are each $2x°$.

The other angle is $(x + 20)°$.

Show that $x = 32$ and find all three angles.

6 A right-angled triangle has an area of 30 cm².



Find the length of the hypotenuse.

7 Each side of a square is increased by 3 cm.

The new area is 4 times the old area.

Show that $3x^2 - 6x - 9 = 0$, where x is the original side.

Find x.

8 Two positive numbers differ by 3.

Their reciprocals differ by $\frac{1}{6}$.

Find the two numbers.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 2

Forming and solving equations

1 $p + p + 25 = 115$

$2p = 90$

$p = 45$

2 $3(2x + 3) = 39$

$6x + 9 = 39$

$x = 5$

3 $2n + 6 = 5n - 9$

$15 = 3n$

$n = 5$

4 $2x + 3(x - 4) = 58$

$5x - 12 = 58 \Rightarrow x = 14$

Adult £14, child £10

Total £24

5 $2x + 2x + x + 20 = 180$

$5x = 160 \Rightarrow x = 32$

64°, 64° and 52°

6 $\frac{1}{2}(x + 3)(x - 4) = 30$

$x^2 - x - 72 = 0$

$(x - 9)(x + 8) = 0 \Rightarrow x = 9$

Sides 12 cm and 5 cm

Hypotenuse = 13 cm

7 $(x + 3)^2 = 4x^2$

$x^2 + 6x + 9 = 4x^2$

$3x^2 - 6x - 9 = 0$

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

$x = 3$

8 $\frac{1}{x} - \frac{1}{x + 3} = \frac{1}{6}$

$\frac{3}{x(x + 3)} = \frac{1}{6}$

$x^2 + 3x - 18 = 0$

$(x + 6)(x - 3) = 0$

3 and 6

Mr&Mrs MATHS