GCSE HIGHER · REVISION MAT 4

Simultaneous equations

1 Solve

$$x + 2y = 11$$
$$x + y = 7$$

2 Solve

$$4x + y = 14$$
$$2x - y = 4$$

3 Two numbers have a sum of 20 and a difference of 6.

Use simultaneous equations to find them.

4 4 pencils and 3 pens cost £3.30.

2 pencils and 5 pens cost £4.10.

Find the cost of 1 pencil and 1 pen together.

5 Solve

$$2x + 5y = -1$$
$$3x - 2y = 8$$

6 A line passes through (1, 4) and (3, 10).

Find where it meets the line $y = 9 - x$.

7 Solve

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

8 A rectangle has a perimeter of 34 cm.

Its diagonal is 13 cm.

Find the area of the rectangle.

Mr&Mrs MATHS

ANSWERS · REVISION MAT 4

Simultaneous equations

1 $y = 4$

$x = 3, y = 4$

2 $6x = 18 \Rightarrow x = 3$

$x = 3, y = 2$

3 $x + y = 20, x - y = 6$

$2x = 26$

13 and 7

4 $4a + 3b = 330$

$4a + 10b = 820$

$7b = 490 \Rightarrow b = 70, a = 30$

£1.00

5 $4x + 10y = -2$

$15x - 10y = 40$

$19x = 38 \Rightarrow x = 2$

$x = 2, y = -1$

6 Gradient 3, so $y = 3x + 1$

$3x + 1 = 9 - x$

$x = 2$

(2, 7)

7 $x^2 - 2x - 3 = 0$

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

(3, 10) and (–1, –2)

8 $x + y = 17, x^2 + y^2 = 169$

$(x + y)^2 = 289$

$2xy = 289 - 169 = 120$

Area $xy = 60$ cm²

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