1   Solve, algebraically, these simultaneous equations.

$$4x + y = 8$$
$$2x - 3y = 11$$

$x =$ ....

$y =$ .... **[4]**

2 Solve these simultaneous equations.

$$3x - 2y = 13$$
$$7x + 6y = 9$$

$x =$ ....

$y =$ .... **[3]**

3   In a car park the only vehicles are motorbikes and cars.
The motorbikes each have 2 wheels and the cars each have 4 wheels.

There are 110 vehicles and 378 wheels altogether in the car park.

Let the number of cars be c and the number of motorbikes be m.

(a) Use the information in the question to complete this equation.

$$c + m = \text{............................}$$

[1]

(b) Write down another equation in c and m and solve it simultaneously with the equation in part **(a)** to find the number of motorbikes and the number of cars in the car park.

(b) Number of cars, c = ...

Number of motorbikes, m = ... **[4]**

4 Chanre sews edging onto curtains and blinds.
She is paid £C for each pair of curtains and £B for each set of blinds.

On Monday she completes 10 pairs of curtains and 2 sets of blinds.
She is paid £35 for this.

This gives the equation $10C + 2B = 35$.

(a) On Tuesday she completes 5 pairs of curtains and 6 sets of blinds.
She is paid £30 for this.

Write an equation to show this information.

(a) _____ **[1]**

(b) Solve the two simultaneous equations algebraically to find the amount she is paid for each
pair of curtains and each set of blinds.

(b) Curtains £ _____

Blinds £ _____ **[3]**

5 Solve these simultaneous equations.

$$4y + 3x = 3$$
$$2y - x = {}^-2$$

$x =$ _____ $y =$ _____ **[3]**

6 Solve, algebraically, these simultaneous equations.

$$3x + 2y = 5$$
$$5x - 3y = 21$$

$x =$ _____

$y =$ _____ **[4]**

7   This shape is made from a regular pentagon and a regular octagon each with sides of the
same length.
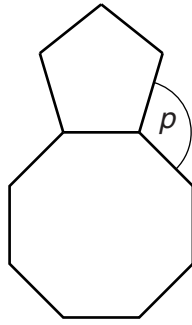
Not to scale

Prove that angle *p* is 117°.   **[5]**

8   The *Park and Ride* is a bus service to take people into the city centre.
Adults pay £1.60 for a ticket and children pay 20 pence.
On one journey there are 55 passengers and the driver collects £67.

Let a be the number of adults on the bus and let c be the number of children on the bus.

(a) Show that $8a + c = 335$.

_____

_____

_____ **[2]**

(b) The fact that there are 55 passengers means that $a + c = 55$.

Solve this equation simultaneously with the one from part **(a)** to find how many
children are on the bus.

(b) _____ **[3]**

9 Solve these simultaneous equations algebraically.

$$y = 2x - 4$$

$$y = x^2 - 4x + 3$$

Give your answers correct to 2 decimal places.

$x =$ .... $y =$ ....

$x =$ .... $y =$ .... **[6]**

10   You are given that f(x) = cx + d and that f(0) = ⁻6 and f(2) = 10.

Find the values of c and d.

$c =$ ....

$d =$ .... **[3]**

11   Solve, algebraically, these simultaneous equations.

$$x + 3y = 14$$
$$2x + y = 3$$

$x =$ ....

$y =$ .... **[3]**

12 Solve algebraically these simultaneous equations.

$$y = x^2 + 6x - 5$$

$$y = 2x + 7$$

$x =$ .... $y =$ ....

$x =$ .... $y =$ .... **[6]**

13 Solve these simultaneous equations algebraically.

$$y = 2x^2 - 4x + 1$$
$$y = 6 - x$$

$x =$ _____ $y =$ _____

$x =$ _____ $y =$ _____

[7]