1 **(a** Express 24 as a product of its prime factors.

(a) _____ **[2]**

(b) Two numbers have a highest common factor of 24 and a least common multiple of 4200. Neither of the numbers is 24.

Find the two numbers, showing how you decide.

(b) _____ and _____ **[3]**

2 **(a** Multiply out.

$3(2a - 5)$

(a) _____ **[2]**

(b) Factorise.

$b^2 + 7b$

(b) _____ **[1]**

3 **(a)** Solve.

$5(2x - 3) = 1$

(a) _____ **[3]**

(b) Factorise completely.

$6a^2 - 10a$

(b) _____ **[2]**

(c) One solution of the equation $3x^2 = 108$ is $x = 6$.

Write down the other solution.

(c) _____ **[1]**

4 **(a** Simplify fully.

$$\frac{40x^3}{5x}$$

(a) _____ **[2]**

(b) Multiply out and simplify fully.

$$3(x - 1) + 4(2x - 5)$$

(b) _____ **[3]**

5 **(a** Factorise completely.

$$4x^2 - 6xy$$

(a) _____ **[2]**

(b) Multiply out and simplify.

$$(x + 7)(x + 2)$$

(b) _____ **[2]**

6 **(a** Express 90 as a product of its prime factors.

(a) _____ **[2]**

(b) A factory has a buzzer which sounds every 90 minutes.
It also has a bell which sounds every 150 minutes.
The buzzer and bell sound together at 9 am.

At what time do they next sound together?

(b) _____ **[3]**

7 **(a** Multiply out.

$3(7x + 6)$

(a) _____ **[2]**

(b) Multiply out and simplify fully.

$6(y - 5) + 2(3 + 2y)$

(b) _____ **[3]**

8 **(a** Multiply out.

$2x(3x - 5)$

(a) _____ **[2]**

(b) Factorise.

$10xy + 15y^2$

(b) _____ **[2]**

9 **(a)** Multiply out.

$x(x^2 - 3x + 1)$

(a) _____ **[3]**

(b) Multiply out and simplify.

$3(4x + 1) - 2(5x + 6)$

(b) _____ **[3]**

(c) Multiply out and simplify.

$(x - 10)(x + 2)$

(c) _____ **[2]**