1 Multiply out and simplify.

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

..... **[3]**

2 Simplify the following, giving your answer in the form $k\sqrt{2}$, where k is an integer.

$$8\sqrt{50}+\frac{30}{\sqrt{2}}$$

..... **[4]**

3 **(a)** Simplify fully.

$$2x + 8y - 7 + x - 4y + 2$$

(a) ..... **[3]**

(b) Simplify fully.

$$\frac{15xy}{10y^2}$$

(b) ..... **[2]**

(c) Factorise fully.

$$4x^2 + 10xy$$

(c) ..... **[2]**

4 **(a)** Multiply out and simplify fully.

$2(5x + 7) - 3(x - 4)$

(a) ..... **[3]**

(b) Multiply out and simplify fully.

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

(b) ..... **[3]**

5 Multiply out and simplify fully.

$$(3+\sqrt{7})(4+\sqrt{7})$$

You must show your working.

..... **[2]**

6 **(a)** Multiply out and simplify.

$4(2a + 5) - 3(a + 2)$

(a) ..... **[3]**

(b) Factorise fully.

$12y + 4y^2$

(b) ..... **[2]**

7 **(a** Simplify fully.

$$\frac{14x^2}{2x}$$

(a) ..... **[2]**

(b) Multiply out the brackets and simplify fully.

$5y(3y - 2) + 4(3y^2 - 2y + 5)$

(b) ..... **[4]**

(c) Factorise fully.

$10x - 15$

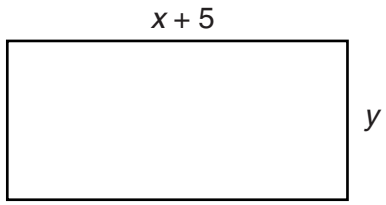
(c) ..... **[1]**

(d) Solve.

$x^2 + 5 = 21$

(d) ..... **[3]**

8 **Three** of these rectangles are joined together to form a different rectangle.



Find an expression for the perimeter of each possible rectangle.
Give any answer in the form $ax + by + c$. **[5]**

9 **(a)** Simplify fully.

$$\frac{4xy}{6x}$$

(a) ..... **[2]**

(b) Multiply out the brackets and simplify fully.

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

(b) ..... **[3]**

10 **(a** Simplify fully.

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

(a) _____ **[2]**

(b) Multiply out and simplify fully.

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

(b) _____ **[3]**

11 **(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]**