Factorising and Expanding Quadratics Exam Practice

Q1. a) Factorise: $x^2 + 4x - 21$

Answer: _____

(2 marks)

b) Expand and simplify : $(2x + 3)(x + 5)$

Answer: _____

(2 marks)

Q2. a) Factorise: $x^2 - 15x + 44$

Answer: _____

(2 marks)

b) Expand and simplify: $(3x + 4)(x - 7)$

Answer: _____

(2 marks)

Q3. a) Factorise $2a^2 - 9a - 10$

Answer:_____

(2 marks)

b) Expand and simplify $20 + 2b(4 - 8b)$

Answer:_____

(2 marks)

Q4. a) Expand and simplify $(5c - 2)(8 - 7c)$

Answer:_____

(2 marks)

b) Factorise: $3c^2 - 2c - 16$

Answer:_____

(2 marks)

Q5. a) Expand and simplify $2(3c-2)(8c-1)$

Answer: _____

(2 marks)

b) Factorise: $c^2 - 144$

Answer: _____

(2 marks)

Q6. a) Expand and simplify $(15x-9)(6x+8)$

Answer: _____

(2 marks)

b) Factorise: $2c^2 - 72$

Answer: _____

(2 marks)

Q7. a) Expand $(3a - 10)^2$

Answer:_____

(2 marks)

b) Factorise: $3c^2 - 30000$

Answer:_____

(2 marks)

Q8. a) Expand and simplify $(4x + 7)(2x - 3) + (x + 3)^2$

Answer:_____

(3 marks)

b) Simplify $2x(x - 9) + 5(x - 9)$

Answer:_____

(2 marks)

Applied Mixed Practice Problems

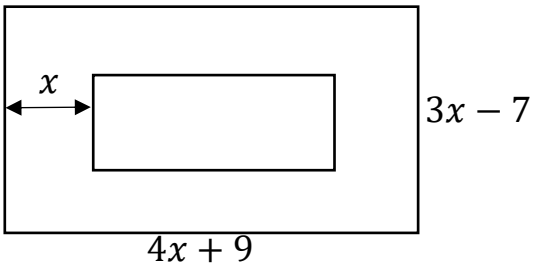
Q9. Let a, b be non-zero numbers. Fill in the table.

Factorised form	Expanded form
	$x^2 - b^4$
$(2x - 5b)(4x - 3b)$	
	$x^2 + (b - a)x - ab$

Answer:_____

(3 marks)

Q10. Below is a rectangular painting surrounded by a rectangular border. The width of the border is x cm all the way around.



a) Find an expression for the area of the border.

Answer:_____

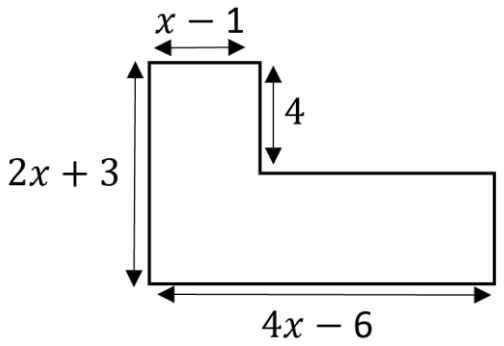
(3 marks)

b) The area of the painting is 25 cm^2. Find the width of the border.

Answer:_____

(2 marks)

Q11. The area of the shape below is 38 cm^2.



Show that $x^2 + 10x - 36 = 0$, and hence find the value of x.

Answer:_____

(4 marks)

Q12. A right-angled triangle has perpendicular sides of lengths $y + 3$ cm and $2y - 5$ cm.
If the area of the triangle is 10.5 cm^2, show that $2y^2 + y - 36 = 0$ and hence find the dimensions of the triangle.

Answer:_____

(5 marks)