



## Expanding and Factorising Exam Practice

Q1. a) Factorise:  $4x^2 + 8x$

Answer:  $4x(x+2)$   
(2 marks)

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

Answer:  $6x+15$   
(2 marks)

Q2. a) Factorise:  $12x^2y - 18xy^4$

Answer:  $6xy(2x - 3y^3)$   
(2 marks)

b) Expand:  $-8(3x + 4)$

Answer:  $-24x - 32$   
(2 marks)



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

Answer:  $a(2a - 1)$   
(2 marks)

b) Expand and simplify  $20 + 2b(4 - 8b) - 3$

$$= 20 + 8b - 16b^2 - 3$$

Answer:  $-16b^2 + 8b + 17$   
(2 marks)

Q4. a) Expand and simplify  $4(5c - 2) + 3(5c + 2)$

$$= 20c - 8 + 15c + 6$$

Answer:  $35c - 2$   
(2 marks)

b) Factorise:  $y(\underline{x + 4}) + z(\underline{x + 4})$

$$(x + 4)(y + z)$$

Answer:  $(x + 4)(y + z)$   
(2 marks)



Q5. a) Expand and simplify  $9(4a + 5) - 2(8a - 3)$

$$= 36a + 45 - 16a + 6$$

Answer:  $20a + 51$   
(2 marks)

b) Factorise:  $200d - 850cd$

$$50d(4 - 17c)$$

Answer:  $50d(4 - 17c)$   
(2 marks)

Q6. a) Simplify  $10x \times 3x + 6x(x + 4)$

$$30x^2 + 6x^2 + 24x$$

Answer:  $36x^2 + 24x$   
(2 marks)

b) Factorise:  $20c - 72d + 32e$

$$4(5c - 18d + 8e)$$

Answer:  $4(5c - 18d + 8e)$   
(2 marks)





Q7. a) Expand  $(4 + 3x) \times 2$

$$8 + 6x$$

Answer:  $8 + 6x$   
(2 marks)

b) Factorise:  $4c^2d - cde$

Answer:  $cd(4c - e)$   
(2 marks)

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

$$14x^2 - 21x + 9x^2$$

Answer:  $23x^2 - 21x$   
(3 marks)

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

$$2x^2 - 18x + 5x - 45$$

Answer:  $2x^2 - 13x - 45$   
(2 marks)



## Applied Mixed Practice Problems

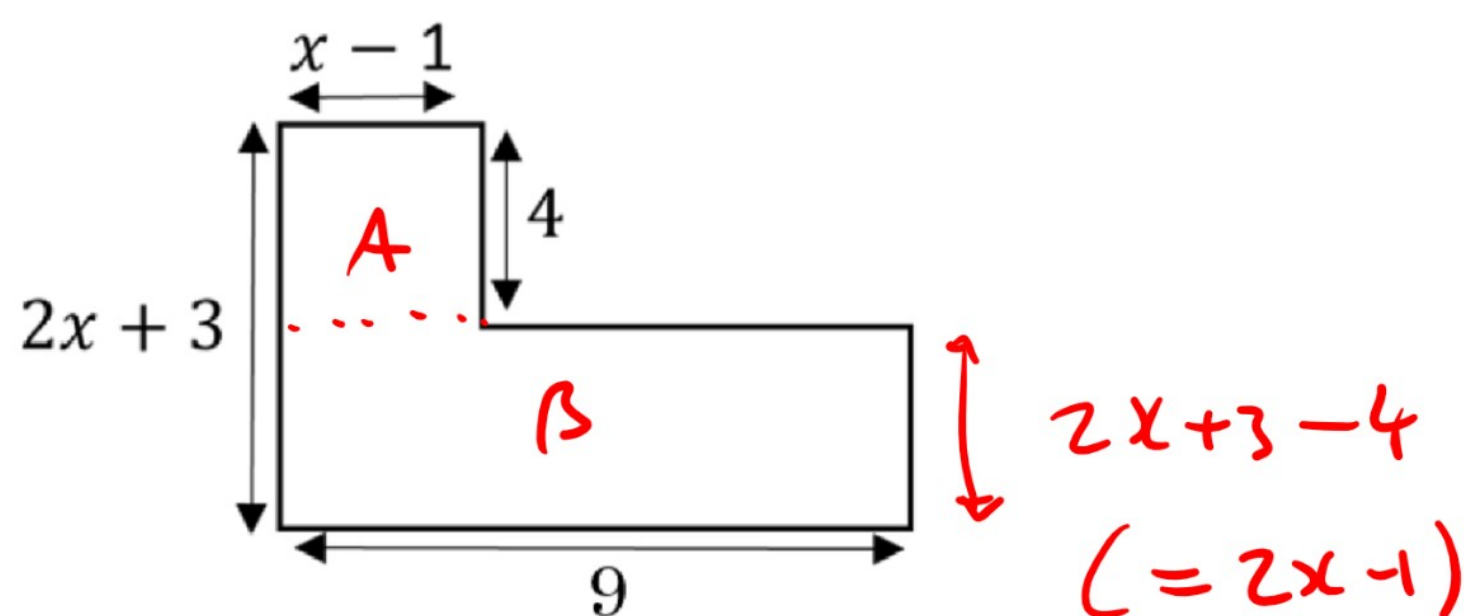
Q9. Let  $a, b$  be non-zero numbers. Fill in the table.

Factorised form	Expanded form
$c^6 a^4 t^6 (c^2 - t^2)$	$c^8 a^4 t^6 - c^6 a^4 t^8$
$-4b(2ab - c + 5)$	$-8ab^2 + 4bc - 20b$
$(b - a)(x + y)$	$(b - a)x + (b - a)y$

Answer: \_\_\_\_\_  
(3 marks)



Q10. The plan view of a living room, shown below, has area  $42 \text{ m}^2$ .



a) Find a fully simplified expression for the area of the living room.

$$(A): \text{ area is } 4(x-1) = 4x - 4$$

$$(B): \text{ area is } 9(2x-1) = 18x - 9$$

$$\begin{aligned} \text{Total area} &= 4x - 4 + 18x - 9 \\ &= 22x - 13 \end{aligned}$$

Answer:  $22x - 13$   
(3 marks)

b) Hence find the length of the shortest wall in the living room.

$$22x - 13 = 42$$

$$22x = 55$$

$$x = \frac{55}{22}$$

$$\Rightarrow x = 2.5$$

$$\Rightarrow \text{shortest wall is } x-1, \\ \text{ie. } 2.5-1 \Rightarrow 1.5\text{m}$$

Answer:  $1.5 \text{ m}$   
(2 marks)