

Quiz 5B.2/5B.3 Trinomial Factoring & Special Trinomials

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1. Factor each expression: (2 marks each)

a) $2x^2 + 9x + 10$

$$\begin{array}{r} x \ 20 \quad + 9 \\ \hline 2x^2 + 4x + 5x + 10 \end{array}$$

$$= 2x(x+2) + 5(x+2)$$

$$= (2x+5)(x+2)$$

c) $9a^2 - b^2$

$$(3a+b)(3a-b)$$

b) $x^2 - x - 56$

$$(x-8)(x+7)$$

d) $81a^2 - 72ab + 16b^2$

$$(9a-4b)^2$$

2. Completely factor each expression (HINT: remember to check for a GCF first): (3 marks each)

a) $3x^2 - 39x + 108$

$$3(x^2 - 13x + 36)$$

$$= 3(x-4)(x-9)$$

b) $200ab^2 - 50a$

$$50a(4b^2 - 1)$$

$$50a(2b+1)(2b-1)$$

3. Determine all values of k so that the trinomial $3x^2 + kx - 2$ can be factored. (2 marks)

$$x - 6 \quad + k$$

-1	6	5
1	-6	-5
-2	3	1
2	-3	-1

4. Identify two values of n so that the polynomial $4a^2 + na + 25$ will be a perfect square trinomial. (1 mark)

$$2(2a+5)$$

$$\pm 20$$

5. Determine each product: (2 marks each)

a) $(3y-4)(3y+4)$

b) $(5a-6k)^2$

2
 $9y^2 - 16$

$25a^2 - 60ak + 36k^2$

6. A rectangle has an area of $2x^2 - 7x - 9$. Determine a simplified expression for the perimeter of the rectangle. (3 marks)

$2x^2 - 7x - 9 = 2x^2 + 2x - 9x - 9$
 $\begin{array}{r} x-18 \\ \hline x-18 \end{array} - 7 = 2x(x+1) - 9(x+1)$
 $= (2x-9)(x+1)$

3
 $P = 2(2x-9) + 2(x+1)$

$= 4x - 18 + 2x + 2$

$= 6x - 16$

$= 2(3x-8) \leftarrow \text{optimal}$
:-)

Quiz 3B.2/3B.3 Trinomial Factoring & Special Trinomials

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1. Factor each expression: (2 marks each)

a) $2x^2 + 13x + 15$

$$\begin{array}{r} 2x^2 + 10x + 3x + 15 \\ \hline 10x + 15 \end{array}$$

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

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

c) $a^2 - 9b^2$

$$(a+3b)(a-3b)$$

b) $x^2 - x - 20$

$$\begin{array}{r} x^2 - x - 20 \\ \hline -5 \quad 4 \end{array}$$

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

d) $64a^2 - 48ab + 9b^2$

$$2(8a(3b))$$

$$(8a-3b)^2$$

2. Completely factor each expression (HINT: remember to check for a GCF first): (3 marks each)

a) $2x^2 - 26x + 72$

$$2(x^2 - 13x + 36)$$

b) $100ab^2 - 25a$

$$25a(4b^2 - 1)$$

$$= 2(x-9)(x-4)$$

$$25a(2b+1)(2b-1)$$

3. Determine all values of k so that the trinomial $3x^2 + kx - 2$ can be factored. (2 marks)

$$\begin{array}{r} x = 6 \quad +k \\ \hline 1 \quad -6 \quad -5 \\ -1 \quad 6 \quad 5 \\ -2 \quad 3 \quad | \\ 2 \quad -3 \quad -1 \end{array}$$

4. Identify two values of n so that the polynomial $4a^2 + na + 25$ will be a perfect square trinomial. (1 mark)

$$2(2a(5))$$

$$\pm 20$$

5. Determine each product: (2 marks each)

a) $(5y-9)(5y+9)$

$$25y^2 - 81$$

b) $(2a-5k)^2$

$$4a^2 - 20ak + 25k^2$$

6. A rectangle has an area of $3x^2 + 11x - 4$. Determine a simplified expression for the perimeter of the rectangle. (3 marks)

$$3x^2 + 11x - 4$$

$$\begin{array}{r} x-1 \\ \hline 3x^2 + 11x - 4 \\ -3x^2 - x \\ \hline 11x - 4 \\ -11x \\ \hline -4 \end{array}$$

$$3x^2 - x + 12x - 4$$

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

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

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

$$= 2x + 8 + 6x - 2$$

$$= 8x + 6$$

$$= 2(4x+3) \leftarrow \text{optional}$$