

5.3b Factoring ax^2+bx+c

$$3x^2 + 12x + 9$$

- GCF.

$$= 3(x^2 + 4x + 3)$$

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

a) $10x^3 + 40x^2 - 120x$

$$10x(x^2 + 4x - 12)$$

$$\boxed{10x(x+6)(x-2)}$$

b) $3x^3y - 6x^2y - 45xy$

$$3xy(x^2 - 2x - 15)$$

$$3xy(x-5)(x+3)$$

$$\overset{12}{\text{---}} \quad \text{---} \quad \text{---}$$

$$3x^2 + 7x + 4$$

- no GCF

$$3x^2 + 3x + 4x + 4$$

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

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

a) $\overset{12}{\text{---}} \quad \text{---} \quad \text{---}$
 $4x^2 + 13x + 3$

$$\underline{4x^2 + x} + \underline{12x + 3}$$

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

$$\boxed{(x+3)(4x+1)}$$

b) $\overset{-24}{\text{---}} \quad \text{---} \quad \text{---}$
 $2x^2 + 5x - 12$

$$\underline{2x^2 + 8x} - 3x - 12$$

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

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