Factorising Quadratic Expressions

Expressions with Multiple x^2

Ex 1

3×8
$= 24$

$+4 \ +6$

$$3x^2 + 10x + 8$$

$$= 3x^2 + 4x + 6x + 8$$

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

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

Ex 2

6×-5
$= -30$

$+5 \ -6$

$$6x^2 - x - 5$$

$$= 6x^2 + 5x - 6x - 5$$

$$= x(6x + 5) - 1(6x + 5)$$

$$= (x - 1)(6x + 5)$$

Ex 3

8×-3
$= -24$

$-1 \ +24$

$$8x^2 + 23x - 3$$

$$= 8x^2 - x + 24x - 3$$

$$= x(8x - 1) + 3(8x - 1)$$

$$= (x + 3)(8x - 1)$$

Exercise   Factorise

1)
$$2x^2 + 11x + 14$$

2×14
$= 28$

$+ 4 \quad + 7$

$$= 2x^2 + 4x + 7x + 14$$
$$= 2x(x+2) + 7(x+2)$$
$$= (2x+7)(x+2)$$

2)
$$5x^2 - 7x - 6$$

5×-6
$= -30$

$+3 \quad -10$

$$= 5x^2 + 3x - 10x - 6$$
$$= x(5x+3) - 2(5x+3)$$
$$= (x-2)(5x+3)$$

3)
$$4x^2 - 12x + 9$$

4×9
$= 36$

$-6 \quad -6$

$$= 4x^2 - 6x - 6x + 9$$
$$= 2x(2x-3) - 3(2x-3)$$
$$= (2x-3)(2x-3)$$