

$$(x+1)(x-2)$$

Focus:

1. To be able to expand and simplify polynomial expressions using the distributive property.
2. To be able to use the multiplication of polynomial expressions to represent area.



Curricular Competencies:
B3: I can apply flexible and strategic approaches to problems

Multiplying Polynomials

When multiplying binomials with trinomials, you still follow the same process, just do more of it 😊!

Examples:

$$(2x - 4y)(4x + 3y + 5)$$

$$\underline{8x^2} + \underline{6xy} + \underline{10x} - \underline{16xy} - \underline{12y^2} - \underline{20y}$$

$$8x^2 + 10x - 10xy - 20y - 12y^2$$

$$(r - 4)(3r^2 + 8r - 6)$$

$$\underline{3r^3} + \underline{8r^2} - \underline{6r} - \underline{12r^2} - \underline{32r} + \underline{24}$$

$$3r^3 - 4r^2 - 38r + 24$$

$$(5x - 3)(2x^2 - 6x + 12)$$

$$\underline{10x^3} - \underline{30x^2} + \underline{60x} - \underline{6x^2} + \underline{18x} - \underline{36}$$

$$10x^3 - 36x^2 + 78x - 36$$

$$(x + 5)(x - 2) + (x - 3)(2x + 6)$$

$$\underline{x^2} - \underline{2x} + \underline{5x} - \underline{10} + \underline{2x^2} + \underline{6x} - \underline{6x} - \underline{18}$$

$$3x^2 + 3x - 28$$

$$\star (3w - 2)(4w + 5) - (w - 7)(2w + 3)$$

$$\underline{12w^2} + \underline{15w} - \underline{8w} - \underline{10} + (\underline{2w^2} + \underline{3w} - \underline{14w} - \underline{21})$$

$$10w^2 + 18w + 11$$

$$(x+1)(5x+3) + 3(2x+4)(6x-2)$$

$$5x^2 + 3x + 5x + 3 + (6x+12)(6x-2)$$

$$5x^2 + 8x + 3 + 3(6x^2 - 12x + 72x - 24)$$

$$41x^2 + 68x - 21$$



$$2(3x-2) - (4x+7)(2x-5)$$

$$6x - 4 + (-8x^2 + 20x + 14x + 35)$$

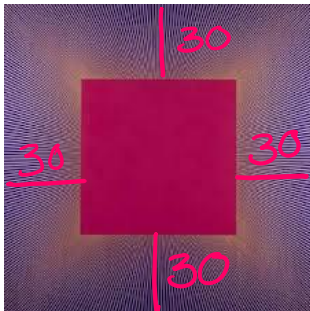
$$-8x^2 + 12x + 31$$

$$(x+3)(5x-2) + 4(x-1)(2x+5)$$

$$5x^2 - 2x + 15x - 6 + (4x-4)(2x+5)$$

$$5x^2 + 13x - 6 + 8x^2 + 20x - 8x - 20$$

$$13x^2 + 25x - 26$$

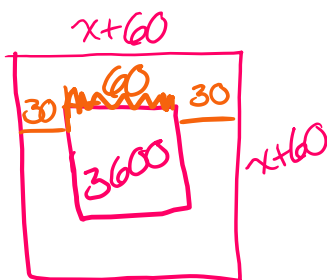


The painting Deep Magenta Square by Richard Anuszkiewicz can be used to represent binomial multiplication. The length of the red square in the painting is unknown. The width of the boarder around the square is 30 cm.

What polynomial expression represents the total area of the painting?

$$(x+60)(x+60) \quad \text{or} \quad (x+60)^2$$

What is the total area of the painting if the red square has an area of 3600 cm²?



$$\sqrt{3600} = x$$

$$60 = x$$

side 60+60
120 cm

$$A_T = (120)(120) \quad \text{or} \quad A_T = 120^2$$

$$= 14400 \text{ cm}^2$$