

2.2 Multiplying Polynomials

FOIL

- multiplying polynomials uses the distributive property:

$$2(x-3) = 4x-6$$

ex: $(x-4)(2x+3) = 2x(x-4) + 3(x-4)$

$$= 2x^2 - 8x + 3x - 12$$
$$= 2x^2 - 5x - 12$$

ex: $(6x - 2)(2x^2 + x - 1)$ $2 \times 3 = 6$



$$= 12x^3 + 6x^2 - 6x - 4x^2 - 2x + 2$$

$$= 12x^3 + 2x^2 - 8x + 2$$

ex:

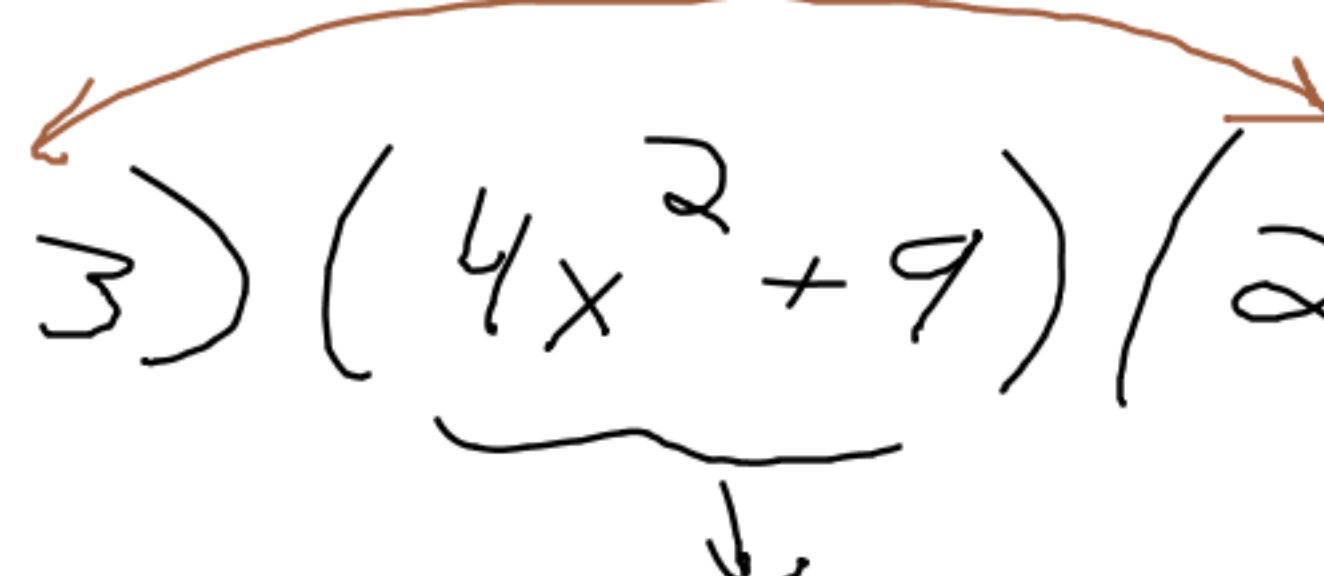
$$(4x - 5)(4x + 5)$$

$$= 16x^2 + \cancel{20x} - \cancel{20x} - 25$$

$$= 16x^2 - 25$$

Difference of Squares

ex: $(2x-3)(4x^2+9)/(2x+3)$



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

$$= 16x^4 - 81$$

ex:

$$(2x + 5)^2$$

~~$$4x^2 + 25$$~~

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

$$= 4x^2 + 10x + 10x + 25$$

$$= 4x^2 + 20x + 25$$

$$(3x - 7)^2$$

$$= 9x^2 - 42x + 49$$

$$\text{ex: } (2x^2 + 4x - 3)(3x^2 - 5x + 1)$$

$$3 \times 3 = \underline{\underline{9}}$$