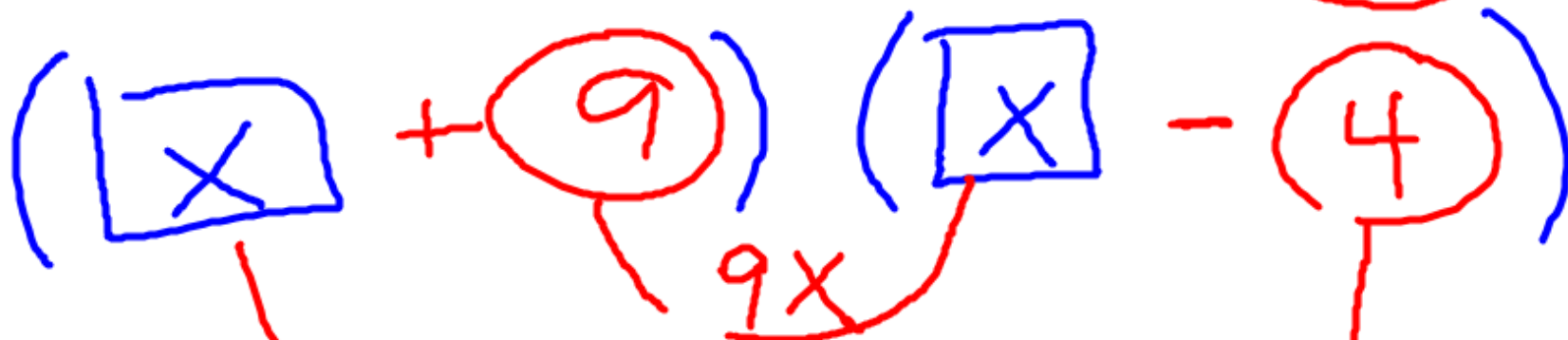


Lesson 1.2: Factoring Quadratics

1) Factor (Diagram):

$$\boxed{x^2} + 5x \boxed{-36}$$



$$9x$$

$$+ \underline{-4x}$$

$$5x$$

$$\boxed{(x + 9)(x - 4)}$$

1) Factor (Bottoms Up): $x^2 + 5x - 36$

1) Verify $x^2 + 5x - 36 \longrightarrow (x + 9)(x - 4)$

$$(x + 9)(x - 4)$$

$$x^2 - 4x + 9x - 36$$

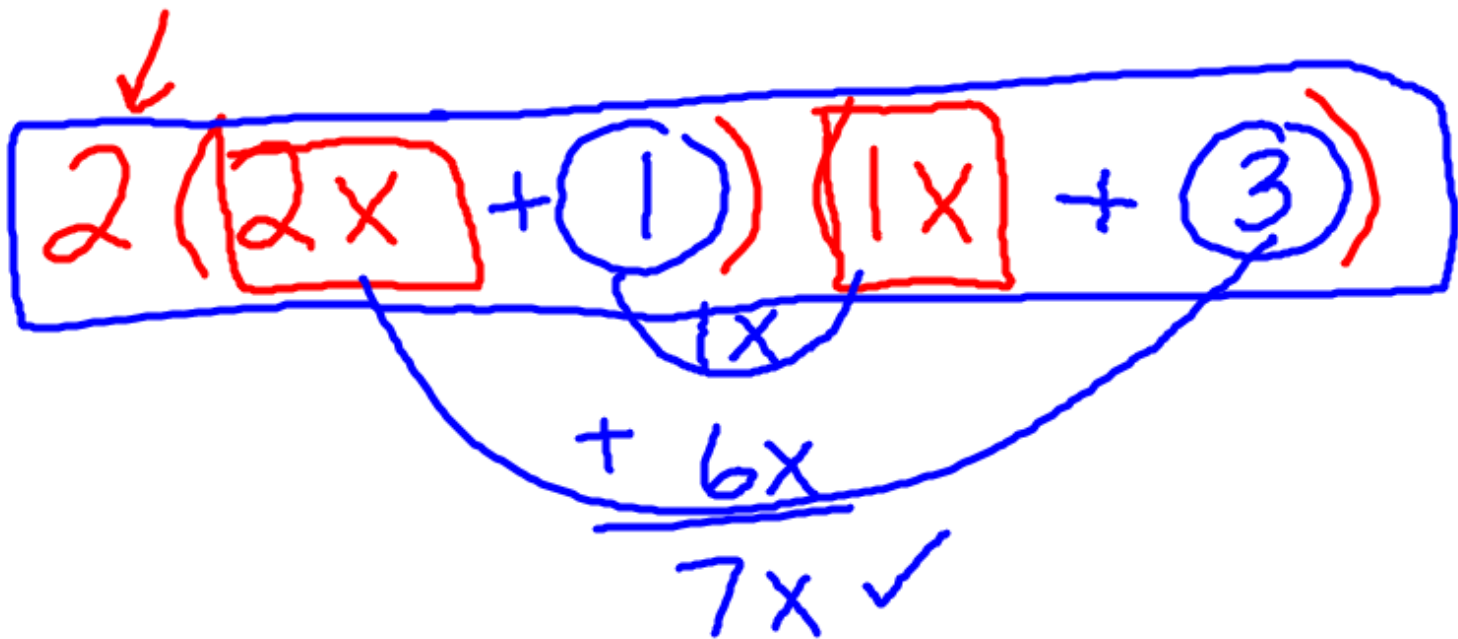
$$x^2 + 5x - 36 \checkmark$$

2) Factor (Diagram):

$$\frac{4x^2}{2} + \frac{14x}{2} + \frac{6}{2}$$

① GCF: 2

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



2) Factor (Bottoms Up): $4x^2 + 14x + 6$

① GCF: 2

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

$$x^2 + 7x + 6$$

$$2\left(x + \frac{6}{2}\right)\left(x + \frac{1}{2}\right)$$

Simplify!

$$2(x + 3)\left(x + \frac{1}{2}\right)$$

$$2(x + 3)(2x + 1)$$

2) Verify: $4x^2 + 14x + 6$



$$2(2x + 1)(x + 3)$$

3) Factor (Diagram): $-4x^2 - 17x + 15$

① GCF: -1

$$-1 (4x^2 + 17x - 15)$$

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

$-3x$

$+ 20x$

$17x$

3) Factor (Bottoms Up): $-4x^2 - 17x + 15$

① GCF: -1

$$-1(4x^2 + 17x - 15)$$

$$4x - 15$$

$$x^2 + 17x - 60$$

$$-1\left(x + \frac{20}{4}\right)\left(x - \frac{3}{4}\right)$$

$$-1(x + 5)\left(x - \frac{3}{4}\right)$$

$$\boxed{-1(x + 5)(4x - 3)}$$

4) Factor (Diagram): $4x^2 + 12x + 9$

4) Factor (Bottoms Up): $4x^2 + 12x + 9$

Difference of Perfect Squares

$$a^2 - b^2 = (a - b)(a + b)$$

\sqrt{A} , 9, 16, 25, 36, 49
 2^2 , 3^2 , 4^2 , 5^2

EX 5: Factor.

$$x^2 - 9$$

(Handwritten red annotations: red lines connect 'x' to 'x' and '3' to '3' in the expression above)

$$(x - 3)(x + 3)$$

EX 6: Factor. $\ominus 50x^2 + 8$

① GCF: -2

$$-2(25x^2 - 4)$$

$\begin{array}{cc} \diagdown & \diagup \\ 5x & 5x \\ \diagup & \diagdown \\ 2 & 2 \end{array}$

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