

$$x^2 - 3x - 4$$

$$y^4 + 11y^2 + 30$$

# TRINOMIALS

$$z^2 + 5zy + 6y^2$$

$$m^2 - 8m + 16$$

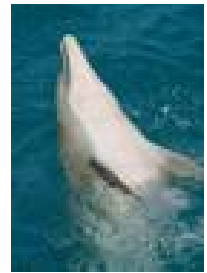
# Expand:

$$\begin{array}{l} (3x+2)(x+1) \\ 3x^2+3x+2x+2 \\ 3x^2+5x+2 \end{array}$$

$$\begin{array}{l} (2x+5)(3x-4) \\ 6x^2-8x+15x-20 \\ 6x^2+7x-20 \end{array}$$

$$\begin{array}{l} (2x-7)(x-1) \\ 2x^2-2x-7x+7 \\ 2x^2-9x+7 \end{array}$$

# Work sdrawkcab



1.  $10x^2 + 17x + 3$

$$\begin{aligned} & 10x^2 + 2x + 15x + 3 \\ & \underline{2x(5x+1)} + \underline{3(5x+1)} \\ & = (2x+3)(5x+1) \end{aligned}$$

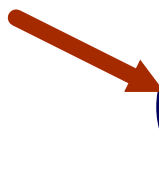
Find two numbers that

$$\begin{aligned} \underline{2} + \underline{15} &= \text{add} \\ & \text{to give } 17 \\ \underline{2} \times \underline{15} &= \text{and} \\ & \text{multiply} \\ & \text{to give } 30. \end{aligned}$$

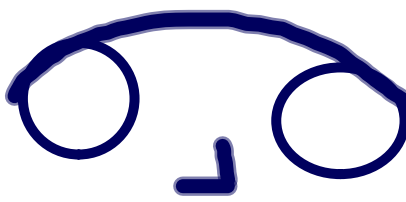
$$\begin{aligned} 1 \times 30 &= 30 \\ 2 \times 15 &= 30 \end{aligned}$$

# *DECOMPOSITION*

If there is a numerical coefficient in front of  $x$ , then we use a method for factoring called *DECOMPOSITION*.


$$4x^2 + 5x - 6$$

Multiply  $\times$



$$4x^2 + 5x - 6$$

$4x^2 + 8x$        $-3x - 6$   
 $4x(x+2)$        $-3(x+2)$   
 $= (4x-3)(x+2)$

$1 \times 24 = 24$   
 $2 \times 12 = 24$   
 $3 \times 8 = 24$



8 + -3 = 5 **And that adds to give you the coefficient of x**

8  $\times$  -3 = -24 **Find two numbers that multiply to give you the new number!**

$$6x^2 - 23x + 7$$

$$\begin{aligned} & \underbrace{6x^2 - 2x} \quad \underbrace{21x + 7} \\ & 2x(3x - 1) - 7(3x - 1) \\ & = (2x - 7)(3x - 1) \end{aligned}$$

$$\begin{aligned} 1 \times 42 &= 42 \\ 2 \times 21 &= 42 \end{aligned}$$

$$\begin{aligned} -2 + 21 &= -23 \\ -2 \times 21 &= 42 \end{aligned}$$

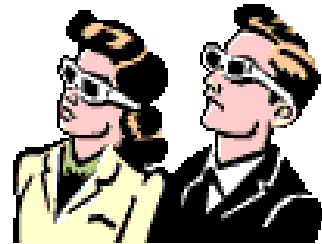


$$2x^2 + 5x + 3$$

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

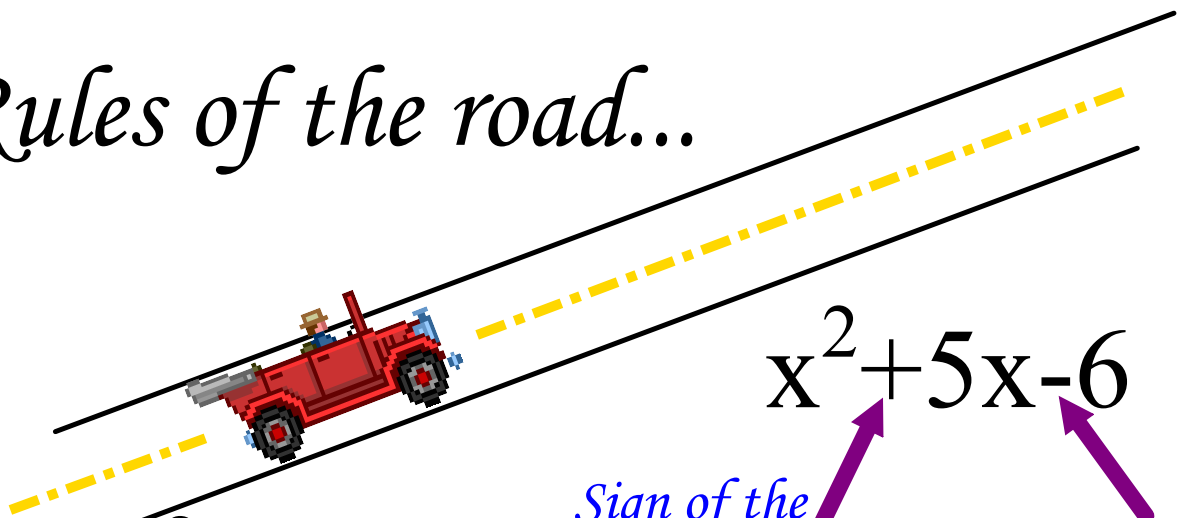
$$2x(x+1) + 3(x+1)$$

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



$$\begin{array}{l} \underline{2} + \underline{3} = 5 \\ \underline{2} \times \underline{3} = 6 \end{array}$$

# Rules of the road...



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

*Sign of the  
biggest number.*

*Signs are  
the same.*

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

*Sign of the  
biggest number.*

*Signs are  
different.*



Check out pages 177 and 178.

Numbers 13 and 15. :)



$$\begin{array}{l} \_ + \_ = \\ \_ \times \_ = \end{array} \begin{array}{l} \text{Biggest} \\ \downarrow \\ \ominus \\ \uparrow \\ \text{Diff} \end{array}$$

$$\begin{array}{l} \_ + \_ = \\ \_ \times \_ = \end{array} \begin{array}{l} \text{Sign} \\ \downarrow \\ \oplus \\ \uparrow \\ \text{Same} \end{array}$$

$$12d^2 + 22d + 8$$

$$\underbrace{12d^2 + 6d} \oplus \underbrace{16d + 8}$$

$$6d(2d+1) + 8(2d+1)$$

$$= (6d+8)(2d+1)$$

$$\begin{array}{l} \underline{6} + \underline{16} = 22 \\ \underline{6} \times \underline{16} = 96 \end{array}$$

$$\begin{array}{l} 1 \times 96 = 96 \\ 2 \times 48 = 96 \\ 3 \times 32 = 96 \\ 4 \times 24 = 96 \\ 6 \times 16 = 96 \\ 8 \times 12 = 96 \end{array}$$