

$$3x^2 + 31x + 36$$

$$(3x + 4)(x + 9)$$

$$\begin{array}{r} 4x \\ + 27x \\ \hline 31x \end{array}$$

add middle
mult to c

	36
1	36
2	18
3	12
4	9
6	6

* cannot make
GCF

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

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



$$\begin{array}{r} 28 \\ \hline 42 \end{array}$$

$$3x^2 - 13x + 4$$

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

Diagram illustrating the expansion of $(3x - 1)(x - 4)$ using the distributive property (FOIL method):

- Outer terms: $3x \cdot x = 3x^2$
- Inner terms: $3x \cdot (-4) = -12x$
- Outer terms: $-1 \cdot x = -1x$
- Inner terms: $-1 \cdot (-4) = 4$

Combining like terms:

$$\begin{array}{r} 3x^2 \\ -12x \\ -1x \\ \hline -13x \\ +4 \end{array}$$

$$\begin{array}{r} 2x \quad 14x \\ 1x \quad 28x \end{array}$$

$$28x^2 + 13x - 6$$

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

$$\begin{array}{r} -8x \\ \hline 21x \\ \hline 13x \end{array} \quad \ddot{\smile}$$

$$\frac{6}{23}$$

$$x^2 - 49$$

$$x^2 + 0x - 49$$

$$(x + 7)(x - 7)$$

$$\begin{array}{r} x \\ -7x \\ \hline 0x \end{array} \quad \text{;-}$$

$$\begin{array}{r} 49 \\ \hline 1 \ 49 \\ 7 \ 7 \end{array}$$