

Foil and Factoring

1.) Multiply $(x + 2)(x + 9)$

2.) Multiply $(2x + 3)(4x + 1)$

$$\begin{aligned}
 & 2x \cdot 4x + 2x \cdot 1 + 3 \cdot 4x + 3 \cdot 1 \\
 & = 8x^2 + 2x + 12x + 3 \\
 & = 8x^2 + 14x + 3
 \end{aligned}$$

3.) Multiply $(3y - 3)(5y + 7)$

SKIP

4.) Factor $x^2 + 7x + 10$

$$\begin{aligned}
 & (x+5)(x+2) \\
 & \quad \diagdown \quad \diagup \\
 & \quad 1 \quad 10 \quad 5 \quad 2 \\
 & \quad \cancel{5} \quad \cancel{2} \\
 & \quad a = 1 \quad b = 7 \quad c = 10 \\
 & \quad (x+5)(x+2)
 \end{aligned}$$

5.) Factor $x^2 + 2x - 3$

$$\begin{array}{l} a=1 \\ b=2 \\ c=-3 \end{array}$$

$$\begin{array}{r} 1 \\ -3 \\ \hline -3 \end{array}$$

$$\begin{array}{r} 3 \\ 2 \\ \hline -1 \end{array}$$

$$\begin{array}{c} (x+3)(x-1) \\ -x+3x \end{array}$$

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

6.) Factor $y^2 - y - 6$

$$(y+3)(y-2)$$

$$y^2 - y - 6$$

$$a = 1$$

$$b = -1$$

$$c = -6$$

$$\begin{array}{r} -3 \\ 2 \\ \hline -1 \end{array}$$

$$(y-3)(y+2)$$

7.) Factor $2x^2 + 3x + 1$

$a = 2$ $m = 2$ $n = 1$

$b = 3$

$c = 1$

$\begin{array}{c|cc} & 2x^2 & 3x \\ \hline 2x & 1x & 1 \\ 1 & & \end{array}$

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