

Factor each polynomial. Check your answer by distributing.

1.)  $2x^2 + 5x + 2$   
 $a=2$   $b=5$   $c=2$

$$ac = 4$$

1	4
2	2

What is different about this problem?

$$\frac{(2x^2 + x)}{x} + \frac{4x + 2}{2}$$

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

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

$$2.) 3n^2 + 5n + 2$$

$$a=3 \quad \underline{b=5} \quad c=2$$

$$ac=6$$

$$\begin{array}{r|l} 1 & 6 \\ \hline 2 & 3 \end{array}$$

$$\underline{2} \quad \underline{3}$$

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

$$n(3n+2) + 1(3n+2)$$

$$(n+1)(3n+2)$$

$$3.) 2y^2 + 9y - 5$$

$$a=2 \quad b=9 \quad c=-5$$

$$ac=-10$$

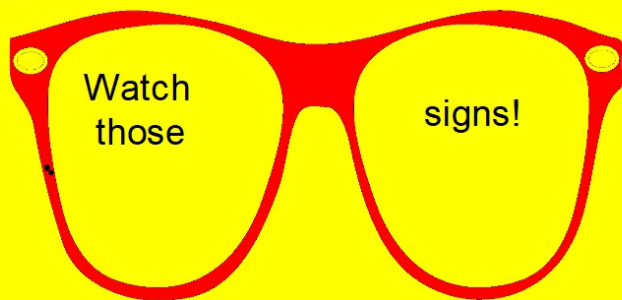
$$\begin{array}{r|l} -1 & +10 \\ \hline 2 & -5 \end{array}$$

$$-1 \quad +10$$

$$\left( \frac{2y^2}{y} - \frac{y}{y} \right) \left( \frac{+10y-5}{5} \right)$$

$$y(2y-1) + 5(2y-1)$$

$$(y+5)(2y-1)$$



Watch  
those

signs!

What if there is a GCF?

$$10. \frac{8x^2}{2} - \frac{2x}{2} - \frac{10}{2}$$

$$2(4x^2 - x - 5)$$

$$a=4 \quad b=-1 \quad c=-5$$

$$ac = -20$$

$$\begin{array}{r|l} -1 & 20 \\ -2 & 10 \end{array}$$

$$\begin{array}{r|l} -2 & 10 \\ +4 & 5 \end{array}$$

$$\left( \frac{4x^2 + 4x}{4x} \right) \left( \frac{-5x - 5}{-5} \right)$$

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

$$2(4x-5)(x+1)$$

$$12. \frac{60x^2}{4} + \frac{4x}{4} - \frac{8}{4}$$

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

$$a=15 \quad b=1 \quad c=-2$$

$$ac = -30$$

$$\begin{array}{r|l} -1 & 30 \\ -2 & 15 \end{array}$$

$$\begin{array}{r|l} -3 & 10 \\ -5 & 6 \end{array}$$

$$\left( \frac{15x^2 - 5x}{5x} \right) \left( \frac{+6x - 2}{2} \right)$$

$$5x(3x-1) + 2(3x-1)$$

$$4(5x+2)(3x-1)$$