

Notes - Day 5 - Factoring when coefficient is not 1

On the problems we have done before, if the coefficient wasn't 1 we could factor out a GCF from each term in the expression. Below that may not always be the case. Draw the box and fill in any known information first.

Factor each quadratic expression below completely.

1) $3r^2 + 16r + 20$

$(3r+10)(r+2)$

	$3r$	10
r	$3r^2$	$10r$
2	$6r$	20

$\frac{10 + 3 \cdot 2 = 16}{10 \cdot 2 = 20}$
 $\begin{array}{l} 1 \quad 20 \\ 2 \quad 10 \\ 4 \quad 5 \end{array}$

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

$(2x-3)(x-2)$

$\frac{2 \cdot 6 = 12}{-3 + (-4) = -7}$
 $2x^2 - 3x - 4x + 6$
 $(2x^2 - 4x) + (-3x + 6)$
 $2x(x-2) - 3(x-2)$
 $(2x-3)(x-2)$

$\begin{array}{l} 1 \quad 12 \\ 2 \quad 6 \\ 3 \quad 4 \end{array}$

3) $5x^2 + 18x - 35$

$(5x-7)(x+5)$

	$5x$	-7
x	$5x^2$	$-7x$
5	$25x$	-35

$\frac{-7 + 5 \cdot 5 = 18}{-7 \cdot 5 = -35}$
 $\begin{array}{l} 1 \quad 35 \\ 5 \quad 7 \end{array}$

4) $7p^2 - 20p - 32$

$(7p+8)(p-4)$

$\frac{8 + (-7) \cdot 4 = -20}{8 \cdot (-4) = -32}$
 $\begin{array}{l} 1 \quad 32 \\ 2 \quad 16 \\ 4 \quad 8 \end{array}$

5) $9n^2 + 91n + 90$

$(9n+10)(n+9)$

$\frac{10 + 9 \cdot 9 = 91}{10 \cdot 9 = 90}$
 $\begin{array}{l} 1 \quad 90 \\ 2 \quad 45 \\ 3 \quad 30 \\ 5 \quad 18 \\ 6 \quad 15 \\ 9 \quad 10 \end{array}$

6) $9b^2 - 9b - 40$

$(3b+5)(3b-8)$

$\frac{5 + 3 \cdot (-8) = -9}{5 \cdot (-8) = -40}$
 $\begin{array}{l} 1 \quad 40 \\ 2 \quad 20 \\ 4 \quad 10 \\ 5 \quad 8 \end{array}$

7) $4p^2 + 35p + 24$

$(4p+3)(p+8)$

$\frac{3 + 4 \cdot 8 = 35}{3 \cdot 8 = 24}$
 $\begin{array}{l} 1 \quad 24 \\ 2 \quad 12 \\ 3 \quad 8 \\ 4 \quad 6 \end{array}$

8) $6x^2 - 13x + 6$

$(2x-2)(3x-3)$

$\frac{2 \cdot 3 = 6}{-2 + (-3) = -5}$
 $\begin{array}{l} 1 \quad 6 \\ 2 \quad 3 \end{array}$

$\frac{+6 = -13}{\cdot = 6}$
 Does not work w/6
 $\begin{array}{l} 1 \quad 6 \\ 2 \quad 3 \end{array}$