Key

Unit 7 Day 6 Notes on Factoring with *a* and *c* Prime

From previously, Factor: $x^2 - 9x + 20$

add multiply

$\boxed{(x-5)(x-4)}$

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

$2x^2 + 6x + x + 3$

$\boxed{2x^2 + 7x + 3}$

prime

$ax^2 + bx + c$ ← prime

Factor:

1) $2x^2 + 7x + 3$ ← multiply $\begin{pmatrix} 1 \text{ and } 3 \\ -1 \text{ and } -3 \end{pmatrix}$

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

3x

2x

5x ← NOT WHAT WE WANTED

TRY #1 FAIL

$\boxed{(2x + 1)(x + 3)}$ TRY #2

x

6x

7x ← ☺

2) $2x^2 - 5x - 3$ ← multiply $\begin{pmatrix} -3 \text{ and } 1 \\ -1 \text{ and } 3 \end{pmatrix}$

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

-3x

2x

-1x FAIL

$\boxed{(2x + 1)(x - 3)}$

x

-6x

-5x ☺

3) $2x^2 - x - 3$ ← multiply $\begin{pmatrix} -3 \text{ and } 1 \\ -1 \text{ and } 3 \end{pmatrix}$

$\boxed{(2x - 3)(x + 1)}$

-3x

2x

-1x ☺

4) $3x^2 + 5x - 2$ ← multiply $\begin{pmatrix} -1 \text{ and } 2 \\ -2 \text{ and } 1 \end{pmatrix}$

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

2x

-3x

-1x FAIL

$\boxed{(3x - 1)(x + 2)}$

-1x

6x

5x ☺

CHALLENGE!

not prime

5) $5x^2 + 27x + 10$

$\begin{pmatrix} 2 \text{ and } 5, -2 \text{ and } -5 \\ 1 \text{ and } 10, -1 \text{ and } -10 \end{pmatrix}$

$\boxed{(5x + 2)(x + 5)}$

2x

25x

27x ☺