

Factoring Trinomials x^2+bx+c

Factor each completely.

1) $x^2 + 15x + 50$

$$\begin{array}{l} \otimes 50 \\ \oplus 15 \end{array}$$

$$\begin{array}{l} 1, 50 \\ 2, 25 \\ \boxed{5, 10} \end{array}$$

$$= (x+5)(x+10)$$

$$\begin{aligned} &= x^2 + 10x + 5x + 50 \\ &= x^2 + 15x + 50 \end{aligned}$$

3) $m^2 + 4m - 60$

$$\begin{array}{l} \otimes -60 \\ \oplus +4 \end{array}$$

$$\begin{array}{l} -1, 60 \\ -2, 30 \\ -3, 20 \\ -4, 15 \\ -5, 12 \\ \boxed{-6, 10} \end{array}$$

$$= (m-6)(m+10)$$

$$= (m+10)(m-6)$$

2) $n^2 - 7n + 12$

$$\begin{array}{l} \otimes 12 \\ \oplus -7 \end{array} \quad \begin{array}{l} -1, -12 \\ -2, -6 \\ \boxed{-3, -4} \end{array}$$

$$= (n-3)(n-4)$$

4) $v^2 - 6v - 27$

$$\begin{array}{l} \otimes -27 \\ \oplus -6 \end{array}$$

$$\begin{array}{l} 1, -27 \\ \boxed{3, -9} \end{array}$$

$$= (v+3)(v-9)$$

5) $n^2 - 70n + 1144$

$$\begin{array}{l} \otimes 1144 \\ \oplus -70 \end{array}$$

$$\begin{array}{l} -1, -1144 \\ -2, -572 \\ -4, -286 \\ -8, -143 \\ -11, -104 \end{array}$$

$$\boxed{-26, -44}$$

$$= (n-26)(n-44)$$

6) $a^2 - 21a - 232$

$$\begin{array}{l} \otimes -232 \\ \oplus -21 \end{array}$$

$$\begin{array}{l} 1, -232 \\ 2, -116 \\ 4, -58 \\ \boxed{8, -29} \end{array}$$

$$= (a-29)(a+8)$$

7) $\frac{4}{4}p^2 - \frac{44}{4}p + \frac{112}{4}$

$$= 4(p^2 - 11p + 28)$$

$$\begin{array}{l} \otimes 28 \\ \oplus -11 \end{array}$$

$$\begin{array}{l} -1, -28 \\ -2, -14 \\ \boxed{-4, -7} \end{array}$$

$$= 4(p-4)(p-7)$$

8) $\frac{-2}{-2}x^2 + \frac{8}{-2}x + \frac{64}{-2}$

$$= -2(x^2 - 4x - 32)$$

$$\begin{array}{l} \otimes -32 \\ \oplus -4 \end{array}$$

$$= -2(x-8)(x+4)$$

$$\boxed{-8, +4}$$