

8.4 | Factoring Trinomials $x^2 + bx + c$

$$\begin{array}{lll} 21. & a^2 + 6a - 16 & \begin{array}{l} \otimes -16 \\ \oplus +6 \end{array} \\ & = (a-2)(a+8) & \begin{array}{l} 1, 16 \\ \textcircled{-2, 8} \\ 4, 4 \end{array} \end{array}$$

$$\begin{array}{lll} 22. & x^2 + 9x + 20 & \begin{array}{l} \otimes 20 \\ \oplus 9 \end{array} \\ & = (x+4)(x+5) & \begin{array}{l} 1, 20 \\ 2, 10 \\ \textcircled{4, 5} \end{array} \end{array}$$

$$\begin{array}{lll} 29. & 3x^2 - 21x + 36 & \\ & = 3(x^2 - 7x + 12) & \begin{array}{l} \otimes 12 \\ \oplus -7 \end{array} \\ & = 3(x-3)(x-4) & \begin{array}{l} -1, -12 \\ -2, -6 \\ \textcircled{-3, -4} \end{array} \end{array}$$

$$\begin{array}{lll} 30. & 5x^2 - 5x - 10 & \\ & = 5(x^2 - x - 2) & \begin{array}{l} \otimes -2 \\ \oplus -1 \end{array} \\ & = 5(x+1)(x-2) & 1, -2 \end{array}$$

$$\begin{array}{lll} 38. & 3k^3 + 15k^2 - 18k & \\ & = 3k(k^2 + 5k - 6) & \begin{array}{l} \otimes -6 \\ \oplus 5 \end{array} \\ & = 3k(k-1)(k+6) & \boxed{\begin{array}{l} -1, 6 \\ \hline 2, 3 \end{array}} \end{array}$$

You do # 23, 24, 33, 34

$$40. \quad a^2 - 7a - 8 \quad \begin{array}{l} \textcircled{\times} -8 \\ \textcircled{+} -7 \end{array} \quad \begin{array}{l} 1, -8 \\ 2, 4 \end{array}$$
$$= (a + 1)(a - 8)$$

$$41. \quad b^2 + 12b + 48 \quad \begin{array}{l} \textcircled{\times} 48 \\ \textcircled{+} 12 \end{array}$$

Not factorable!

$\begin{array}{l} 1, 48 \\ 2, 24 \\ 3, 16 \\ 4, 12 \\ 6, 8 \end{array}$

$$43. \quad x^2 - 20x + 100 \quad \begin{array}{l} \textcircled{\times} 100 \\ \textcircled{+} -20 \end{array}$$
$$= (x - 10)(x - 10)$$
$$= (x - 10)^2$$

$\begin{array}{l} 1, 100 \\ 2, 50 \\ 4, 25 \\ 5, 20 \\ -10, -10 \end{array}$

$$45. \quad x^2 - 4x - 4 \quad \begin{array}{l} \textcircled{\times} -4 \\ \textcircled{+} -4 \end{array} \quad \begin{array}{l} 1, -4 \\ 2, -2 \end{array}$$

$\therefore$ Not factorable.

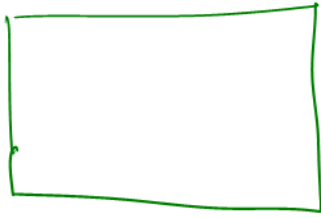
Made up) $2x^2 + 10x + 24$

$$= 2(x^2 + 5x + 12) \quad \begin{array}{l} \textcircled{\times} 12 \\ \textcircled{+} 5 \end{array}$$

can't factor anymore.

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

47.



$$A = x^2 + 9x + 20$$

$$\textcircled{+} 20$$

$$\textcircled{+} 9$$

$$a) A = (x+4)(x+5)$$

$$1, 20$$

$$2, 10$$

$$\textcircled{9, 5}$$

$$b) A = (x+4-1)(x+5-1)$$

$$A = (x+3)(x+4)$$

$$c) A = x^2 + 4x + 3x + 12$$

$$A = x^2 + 7x + 12$$

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