

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

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

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

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

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

38. $3k^3 + 15k^2 - 18k$
 $= 3k(k^2 + 5k - 6)$ $\begin{matrix} \otimes -6 \\ \oplus 5 \end{matrix}$ $\begin{matrix} -1, 6 \\ -2, 3 \end{matrix}$
 $= 3k(k - 1)(k + 6)$

You do # 23, 24, 33, 34

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

Not Factorable

$$\begin{array}{ll} 1, 48 & = 49 \\ 2, 24 & = 26 \\ 3, 16 & = 19 \\ 4, 12 & = 16 \\ 6, 8 & = 14 \end{array}$$

$$43. \quad z^2 - 20z + 100$$

$$= (z - 10)(z - 10)$$

$$= (z - 10)^2$$

$$\textcircled{\times} 100$$

$$\textcircled{+} -20$$

$$-1, -100$$

$$-2, -50$$

$$-4, -25$$

$$-5, -20$$

$$\textcircled{-10, -10}$$

$$45. \quad x^2 - 4x - 4 \quad \begin{matrix} \textcircled{\times} -4 \\ \textcircled{+} -4 \end{matrix}$$

$$1, -4 = -3$$

$$2, -2 = 0$$

Not factorable.

$$3x^2 - 12x - 12$$

$$= 3(x^2 - 4x - 4)$$

can't factor any more

47.



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

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

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

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

$$c) \quad A = x^2 + 4x + 3x + 12 = x^2 + 7x + 12$$

8.5) Special Products (Difference of Squares)

$$\begin{aligned} 8. \quad & (a+5)(a-5) \\ & = a^2 - 5a + 5a - 25 \\ & = a^2 - 25 \end{aligned}$$

$$\begin{aligned} 10. \quad & (x-9)(x+9) \\ & = x^2 - 81 \end{aligned}$$

$$\begin{aligned} 12. \quad & (t-10)(t+10) \\ & = t^2 - 100 \end{aligned}$$

$$\begin{aligned} 13. \quad & (2x-1)(2x+1) \\ & = 4x^2 - 1 \end{aligned}$$

$$\begin{aligned} 18. \quad & (10t-3)(10t+3) \\ & = 100t^2 - 9 \end{aligned}$$

$$\begin{aligned} 23. \quad & (x^2+3)(x^2-3) \\ & = x^4 - 9 \end{aligned}$$

$$\begin{aligned} 32. \quad & \underline{(x-1)(x+1)}(x^2+1) \\ & = (x^2-1)(x^2+1) \\ & = x^4 - 1 \end{aligned}$$

Homework: 8.4 Finish

8.5. #7-34