

8.5 Special Products - Difference of Squares

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

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

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

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

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

8.6 Factoring Difference of Squares

$$\begin{aligned} 2. w^2 - 100 &\Rightarrow w^2 + 0w - 100 \\ &= (w-10)(w+10) \end{aligned}$$

$$\begin{array}{l} \otimes -100 \\ \oplus 0 \\ 1, 100 \\ 2, 50 \\ ! \\ 10, 10 \end{array}$$

$$\begin{aligned} 4. \sqrt{4a^2} - \sqrt{121} \\ = (2a-11)(2a+11) \end{aligned}$$

$$\begin{aligned} 6. x^4 - 36 \\ = (x^2-6)(x^2+6) \end{aligned}$$

$$10. m^2 - 49 \\ = (m+7)(m-7)$$

$$11. p^2 - 25 \\ = (p+5)(p-5)$$

$$15. -y^2 + 144 \Rightarrow 144 - y^2 \\ = \text{Not Factorable}$$

$$19. x^2 - y^2 \\ = (x-y)(x+y)$$

$$23. \sqrt{4a^2} - \sqrt{9b^2} \\ = (2a - 3b)(2a + 3b)$$

$$27. \sqrt{16} - x^2 \\ = (4-x)(4+x)$$

You do: pg 285 #18, 23
pg 287 #17, 32, 33

$$35. 6x^2 - 25$$

= not factorable because we
cannot do $\sqrt{6}$.

$$39. x^2y^2 - 4 \\ = (xy-2)(xy+2)$$

$$41. \sqrt{(a+b)^2} - \sqrt{(a-b)^2} \\ = \left(\underset{x}{(a+b)} - \underset{y}{(a-b)} \right) \left(\underset{x}{(a+b)} + \underset{y}{(a-b)} \right) \\ = (2b)(2a) = 4ab$$

$$\begin{aligned}
 43. \quad & 2n^2 - 50 \\
 &= 2(n^2 - 25) \\
 &= 2(n-5)(n+5)
 \end{aligned}$$

$$\begin{aligned}
 46. \quad & 8a^2 - 50 \\
 &= 2(\sqrt{4a^2} - \sqrt{25}) \\
 &= 2(2a-5)(2a+5)
 \end{aligned}$$

8.7.] Special Products - Perfect Squares:

$$1. (-7)^2 = 49 \quad 4. (-12)^2 = 144$$

$$7. (11y)^2 = (11y)(11y) = 121y^2$$

$$\begin{aligned}
 27. \quad & (y-10)^2 \\
 &= (y-10)(y-10) \\
 &= y^2 - \underbrace{10y - 10y} + 100 \\
 &= y^2 - 20y + 100
 \end{aligned}$$

$$\begin{aligned}
 28. \quad & (3a-1)^2 \\
 &= (3a-1)(3a-1) \\
 &= 9a^2 - \underbrace{3a - 3a} + 1 \\
 &= 9a^2 - 6a + 1
 \end{aligned}$$

Shortcut way:

$$\begin{aligned}
 29. \quad & (5x+2)^2 \\
 &= 25x^2 + 20x + 4
 \end{aligned}$$

$$\begin{aligned}
 34. \quad & (4x-3y)^2 \\
 &= 16x^2 - 24xy + 9y^2
 \end{aligned}$$

Homework: 8.5 pg 285 # 7-34
 8.6 pg 287 # All
 8.7 pg 289 # 3-36