

8.6 Factoring the Difference of Squares

Recall: $(x-10)(x+10) = x^2 - 100$ $(2x-3)(2x+3) = 4x^2 - 9$

2. $\sqrt{w^2} - \sqrt{100}$

$= (w-10)(w+10)$

4. $\sqrt{4a^2} - \sqrt{121}$

$= (2a+11)(2a-11)$

6. $x^4 - 36$

$= (x^2-6)(x^2+6)$

$= x^4 + \cancel{6x^2} - \cancel{6x^2} - 36$

10. $m^2 - 49$

$= (m+7)(m-7)$

11. $p^2 - 25$

$= (p+5)(p-5)$

15. $y^2 + 144$

= Not factorable
because of the "+"

19. $s^2 - t^2$

$= (s-t)(s+t)$

23. $\sqrt{4a^2} - \sqrt{9b^2}$

$= (2a-3b)(2a+3b)$

You do # 17, 27, 32, 33. pg 287

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

not factorable because $\sqrt{6}$ is not nice.

$$39. \sqrt{x^2 y^2} - \sqrt{4}$$

$$= (xy - 2)(xy + 2)$$

$$41. (a+b)^2 - (a-b)^2$$

$$= ((a+b) + (a-b))((a+b) - (a-b))$$

$$= (2a)(2b) \left\{ \text{just for fun.} \right.$$

$$= 4ab$$

$$43. 2m^2 - 50$$

$$= 2(\sqrt{m^2} - \sqrt{25})$$

$$= 2(m-5)(m+5)$$

$$46. 8a^2 - 50$$

$$= 2(\sqrt{4a^2} - \sqrt{25})$$

$$= 2(2a-5)(2a+5)$$

8.7] Special Products: Perfect Squares

$$1. (-7)^2 = 49$$

$$4. (-12)^2 = 144$$

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

$$27. (y-10)^2$$

$$= (y-10)(y-10)$$

$$= y^2 - 10y - 10y + 100$$

$$= y^2 - 20y + 100$$

$$28. (3a-1)^2$$

$$= (3a-1)(3a-1)$$

$$= 9a^2 - 3a - 3a + 1$$

$$= 9a^2 - 6a + 1$$

$$29. (5x+2)^2 \\ = 25x^2 + 20x + 4$$

$$34. (4x-3y)^2 \\ = 16x^2 - 24xy + 9y^2$$

Rewrite in the form $(a+b)^2$ or $(a-b)^2$.

$$37. x^2 + 14x + 49 \\ = (x + 7)^2$$

$$38. x^2 - 16x + 64 \\ = (x-8)(x-8) \\ = (x-8)^2$$

$$\begin{array}{r} \textcircled{\times} 64 \\ \textcircled{+} -16 \\ \hline 1, 64 \\ 2, 32 \\ \vdots \\ -8, 8 \end{array}$$

$$39. \sqrt{4}a^2 + \underline{12}a + \sqrt{9} \\ = (2a+3)^2$$

Homework: 8.6 pg 287 ALL
8.7 pg 289 ALL