Chapter 4 - Factoring Day 4 Wks

Example 1   Factor using the Difference of Two Squares

5. $n^2 - 25$

$n^2 + 0x - 25$

$-5 \cdot 5$

$(n-5)(n+5)$

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

$a^2 - ab + ab - b^2$

$a^2 - b^2$

$n^2 - 25$

$(n)^2 - (5)^2$

$(n+5)(n-5)$

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Example 1   Factor using the Difference of Two Squares

6. $m^2 - 225$

$$(m)^2 - (15)^2$$

$$(m+15)(m-15)$$

9. $49x^2 - 4 \quad = 0$

$$(7x)^2 - (2)^2$$

$$(7x+2)(7x-2) = 0$$

$7x+2=0 \qquad 7x-2=0$

$x = \dfrac{2}{7} \qquad\quad x = \dfrac{2}{7}$

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Example 2   Factor using the Perfect Square Trinomials

14. $4x^2 - 4x + 1$

$AC = 4$

$-2 \quad -2$

$4x^2 - 2x - 2x + 1$

$2x(2x-1) - 1(2x-1)$

$(2x-1)(2x-1)$

$(2x-1)^2$

$(a-b)^2$

$(a-b)(a-b)$

$a^2 - ab - ab + b^2$

$a^2 - 2ab + b^2$

$4x^2 - 4x + 1$

$(2x)^2 \quad 2(2x)(1)(1)^2$

$4x$

$(2x-1)^2$

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Example 2   Factor using the Perfect Square Trinomials

15. $x^2 + 8x + 16$

$$(x)^2 \quad 2(x)(4) \quad (4)^2$$
$$8x$$
$$(x + 4)^2$$

18. $16n^2 + 72n + 81$

$$(4n)^2 \quad 2(4n)(9) \quad (9)^2$$
$$72x$$
$$(4n + 9)^2$$

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Example 3   Solve by Factoring.

20. $64x^2 - 49 = 0$

$$(8x)^2 - (7)^2 = 0$$

$$(8x + 7)(8x - 7) = 0$$

$8x + 7 = 0 \qquad 8x - 7 = 0$

$x = -\dfrac{7}{8} \qquad x = \dfrac{7}{8}$

22. $x^2 + 6x = 40$

$-40 \quad -40$

$$x^2 + 6x - 40 = 0$$

$10 \quad -4$

$$(x + 10)(x - 4) = 0$$

$x = -10 \qquad x = 4$

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Example 3   Solve by Factoring.

23. $3x^2 = 9x$

$3x^2 - 9x = 0$

$3x(x-3) = 0$

$3x = \dfrac{0}{3} \qquad x - 3 = 0$

$\boxed{x = 0} \qquad \boxed{x = 3}$

28. $6r^3 + 19r^2 = 7r$

$6r^3 + 19r^2 - 7r = 0$

$r\left(6r^2 + 19r - 7\right) = 0$

$AC = -42$

$21 \quad -2$

$r\left(6r^2 + 21r - 2r - 7\right) = 0$

$r\left(3r(2r+7) - 1(2r+7)\right) = 0$

$r(2r+7)(3r-1) = 0$

$\boxed{r = 0} \qquad 2r + 7 = 0 \qquad 3r - 1 = 0$

$\boxed{r = \dfrac{-7}{2}} \qquad \boxed{r = \dfrac{1}{3}}$