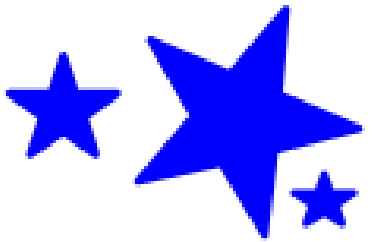
# 9 - 5
# Factoring Differences of Squares

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

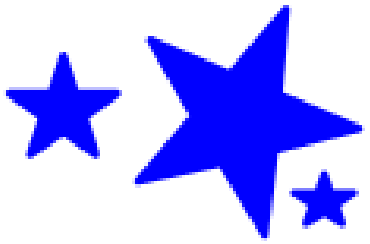
**Ex:** $x^2 - 25$ $\quad x \quad 5$ $\quad (x+5)(x-5)$



**Ex:** $100 - y^2$ $\quad 10 \quad y$ $\quad (10-y)(10+y)$

**Ex:** $36x^2 - 49y^2$ $\quad 6x \quad 7y$ $\quad (6x+7y)(6x-7y)$

**Ex: $48a^3 - 12a$**

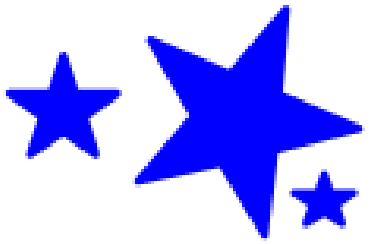


$12a(4a^2 - 1)$

$2a$ $1$

$$\boxed{12a(2a+1)(2a-1)}$$

**Ex: $2x^4 - 162$**



$2(x^4 - 81)$

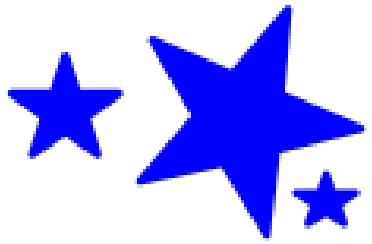
$x^2$ $9$

$2(x^2 + 9)(x^2 - 9)$

$x$ $3$

$\boxed{2(x^2+9)(x+3)(x-3)}$

**Ex:** $5x^3 + 15x^2 - 5x - 15$



**Ex: Solve $18x^3 = 50x$.**

$-50x \quad -50x$

$$18x^3 - 50x = 0$$

$3x \quad 5$

$$2x(9x^2 - 25) = 0$$

$$2x(3x+5)(3x-5) = 0$$

$2x = 0$

$x = 0$

$3x + 5 = 0$

$-5 \quad -5$

$\frac{3x}{3} = \frac{-5}{3}$

$x = -\frac{5}{3}$

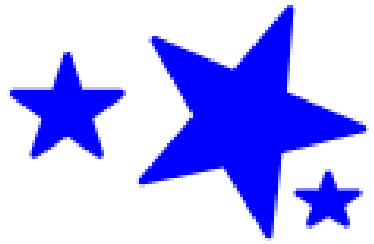
$3x - 5 = 0$

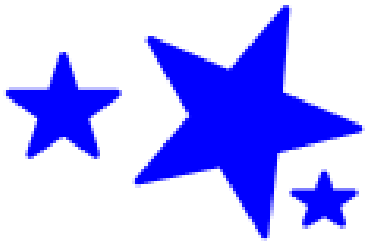
$+5 \quad +5$

$\frac{3x}{3} = \frac{5}{3}$

$x = \frac{5}{3}$

**Ex: Solve $p^2 - \frac{9}{16} = 0$.**





Homework:

p. 505 #16 - 32 even, 34, 35

Skip #18