

Warm-up

Solve by factoring.

$$1. \quad x^2 - 81 = 0$$

$$(x+9)(x-9) = 0$$

$$x+9=0 \quad x-9=0$$

$$x = -9, 9$$

$$2. \quad x^2 - 3x = 40$$

$$\quad \quad -40 \quad -40$$

$$x^2 - 3x - 40 = 0$$

$$(x+5)(x-8) = 0$$

$$x+5=0 \quad x-8=0$$

$$x = -5, 8$$

Solve by QF.

$$3. \quad 3x^2 - 2x + 7 = 0$$

$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

$$a=3 \quad b=-2 \quad c=7$$

$$x = \frac{2 \pm \sqrt{4 - 4(3)(7)}}{2(3)}$$

$$x = \frac{2 \pm \sqrt{-80}}{6}$$

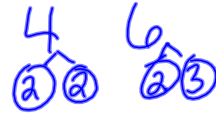
$$x = \frac{2 \pm 4i\sqrt{5}}{6}$$

$$x = \frac{1 \pm 2i\sqrt{5}}{3}$$

$$x = \frac{1}{3} + \frac{2\sqrt{5}}{3}i$$

Sec. 8.5 Adding and Subtracting Rational Expressions

Problem 1:



$$\text{LCM: } 2 \cdot 2 \cdot 3 = 12$$

What is the LCM of

$$x^2 + 4x - 12 \quad \text{and} \quad x^2 - 6x + 8$$

$(x+6)(x-2)$ $(x-2)(x-4)$
 $(x-4)$ $(x+6)$

$$\text{LCM: } (x+6)(x-2)(x-4)$$

- ① Factor each
- ② Write factors of first
- ③ Write any additional factors of second

b. $2x + 4$ and $x^2 - x - 6$

$$c. \quad x^2 + 3x - 4, \quad x^2 + 2x - 8, \quad x^2 - 4x + 4$$

$$(x+4)(x-1) \quad | \quad (x-2)(x+4) \quad | \quad (x-2)(x-2)$$

$$\text{LCM: } (x+4)(x-1)(x-2)(x-2)$$

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

Problem 2:

$$\frac{4(x+3)}{x^2+3x} + \frac{(x-2)x}{x^2+6x+9} = \frac{4x+12+x^2-2x}{x(x+3)(x+3)}$$

$x(x+3)(x+3)$ $(x+3)(x+3)x$

$$\frac{x^2 + 2x + 12}{x(x+3)(x+3)}$$

$$3x + 6 = 1$$