

6

$$x^2 - 8x + 2 = 0$$

$$x^2 - 8x + 2 = 0$$

$$x^2 - 8x = -2$$

$(-8 \cdot \frac{1}{2})^2$
 $(-4)^2$
16

$$x^2 - 8x + 16 = -2 + 16$$

$$x^2 - 8x + 16 = 14$$

$$(x - 4)^2 = 14$$

$$x - 4 = \pm \sqrt{14}$$

$$x = 4 \pm \sqrt{14}$$

COMPLETING THE SQUARE

STEP 1: DIVIDE EVERYTHING BY THE NUMBER IN FRONT OF x^2

STEP 2: TAKE NUMBER TO RIGHT SIDE

STEP 3: TAKE THE NUMBER BEFORE X, MULTIPLY IT BY $\frac{1}{2}$, SQUARE IT, THEN ADD TO BOTH SIDES

STEP 4: FACTOR LEFT SIDE

STEP 5: USING SQUARE ROOT PROPERTY, SOLVE FOR X

7

$$x^2 + 3x + 5 = 0$$

$$x^2 + 3x = -5$$

$(3 \cdot \frac{1}{2})^2$
 $(\frac{3}{2})^2$
 $\frac{9}{4}$

$$x^2 + 3x + \frac{9}{4} = -5 + \frac{9}{4}$$

$$x^2 + 3x + \frac{9}{4} = -\frac{11}{4}$$

$$(x + \frac{3}{2})^2 = -\frac{11}{4}$$

$$x + \frac{3}{2} = \pm \sqrt{-\frac{11}{4}}$$

$$x + \frac{3}{2} = \pm \frac{\sqrt{-11}}{\sqrt{4}}$$

$$x + \frac{3}{2} = \pm \frac{i\sqrt{11}}{2}$$

$$x = -\frac{3}{2} \pm \frac{i\sqrt{11}}{2}$$

$$x = -\frac{3}{2} \pm \frac{i\sqrt{11}}{2}$$

8

$$3x^2 - 5x + 1 = 0$$

$$\frac{3x^2}{3} - \frac{5x}{3} + \frac{1}{3} = \frac{0}{3}$$

$$x^2 - \frac{5}{3}x + \frac{1}{3} = 0$$

$$x^2 - \frac{5}{3}x = -\frac{1}{3}$$

$(-\frac{5}{3} \cdot \frac{1}{2})^2$
 $(-\frac{5}{6})^2$
 $\frac{25}{36}$

$$x^2 - \frac{5}{3}x + \frac{25}{36} = -\frac{1}{3} + \frac{25}{36}$$

$$x^2 - \frac{5}{3}x + \frac{25}{36} = \frac{-12}{36} + \frac{25}{36}$$

$$x^2 - \frac{5}{3}x + \frac{25}{36} = \frac{13}{36}$$

$$(x - \frac{5}{6})^2 = \frac{13}{36}$$

$$x - \frac{5}{6} = \pm \sqrt{\frac{13}{36}}$$

$$x - \frac{5}{6} = \pm \frac{\sqrt{13}}{\sqrt{36}}$$

$$x - \frac{5}{6} = \pm \frac{\sqrt{13}}{6}$$

$$x = \frac{5}{6} \pm \frac{\sqrt{13}}{6}$$

$$x = \frac{5 \pm \sqrt{13}}{6}$$