

10 - 3

Completing the Square

Ex: Solve $x^2 - 14x = -13$ by completing the square.

$$x^2 - 14x = -13$$

$$x^2 - 14x + \underline{49} = -13 + \underline{49}$$

$$\sqrt{(x - 7)^2} = \sqrt{36}$$

$$x - 7 = \pm 6$$

$$x = 7 \pm 6$$

13 and 1

$7 + 6$ $7 - 6$

$$\text{Ex: } x^2 - 18x + \cancel{5} = -12$$

$$x^2 - 18x = -17$$

$$x^2 - 18x + \underline{81} = -17 + \underline{81}$$

$$\sqrt{(x-9)^2} = \sqrt{64}$$

$$x - \cancel{9} = \pm 8$$

$$x = 9 \pm 8$$

17 and 1

$$\text{Ex: } 3x^2 + 15x - \cancel{3} = 0$$

$\quad \quad \quad +3 \quad \quad +3$

$$\frac{\cancel{3}x^2}{\cancel{3}} + \frac{15x}{3} = \frac{3}{3}$$

$$x^2 + 5x = 1$$

$$x^2 + 5x + \underline{6.25} = 1 + \underline{6.25}$$

$$\sqrt{(x+2.5)^2} = \sqrt{7.25}$$

$$x + \cancel{2.5} = \pm 2.69$$

$\quad -2.5 \quad -2.5$

$$x = -2.5 \pm 2.69$$

.19 and
-5.19



Homework:

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