Warm-up

Solve

① $\sqrt{x^2} = \sqrt{9}$

$x = \pm 3$

② $\sqrt{(x-5)^2} = \sqrt{49} \rightarrow x^2 = 49$

$\sqrt{x^2} = \sqrt{49}$

$x = \pm 7$

$x - 5 = \pm 7$

$+5 \quad +5$

$x = 5 \pm 7 \rightarrow x = 12, -2$

③ $\frac{2(x+6)^2}{2} = \frac{40}{2}$

$\frac{2x^2}{2} = \frac{40}{2}$

$x^2 = 20$

$\sqrt{(x+6)^2} = \sqrt{20}$

$\sqrt{4} \cdot \sqrt{5}$

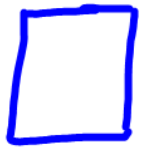
$x + 6 = \pm 2\sqrt{5}$

$-6 \quad -6$

$x = -6 \pm 2\sqrt{5}$

4.7 Complete the Square

* Perfect square trinomials



Factor each	binomials	Compact
$x^2+10x+25$ (1·25, 5·5)	$(x+5)(x+5)$	$(x+5)^2$
$x^2-8x+16$	$(x-4)(x-4)$	$(x-4)^2$
$x^2+18x+81$ (9·9)	$(x+9)(x+9)$	$(x+9)^2$
$x^2-7x+10$	$(x-5)(x-2)$	Not possible

To Solve

$m^2 = 25$

$m = \pm 5$

$x^2 - 8x + 16 = 25$

can we factor?

$(x-4)(x-4)$ → Compact

Square root → $\sqrt{(x-4)^2} = \sqrt{25}$

$x - 4 = \pm 5$

$+4 \quad +4$

$x = 4 \pm 5$

$4+5 = 9$

$4-5 = -1$

$x = 9, -1$

$x^2 - 14x + 49 = 27$

1.

$(x-7)(x-7) = 27$

$\sqrt{(x-7)^2} = \sqrt{27}$

$x - 7 = \pm 3\sqrt{3}$

$+7 \quad +7$

$x = 7 \pm 3\sqrt{3}$