

① Solve $x^2 = 25$

$x^2 - 25 = 0$
 $(x+5)(x-5) = 0$
 $x = 5, -5$

$\sqrt{x^2} = \pm \sqrt{25}$
 $x = \pm 5$

② Solve $(x-3)^2 = 25$

$(x-3)(x-3) = 25$
⋮

Shami's way:

$$(x-3)^2 = 25$$

$$(x-3)^2 - 25 = 0$$

$$[(x-3)+5][(x-3)-5] = 0$$

$$[x+2][x-8] = 0$$

$$x = -2, 8$$

Another way:

$$(x-3)^2 = 25$$

$$\sqrt{(x-3)^2} = \pm\sqrt{25}$$

$$x-3 = \pm 5$$

$$x = 3 \pm 5$$

$$x = 8, -2$$

Solve by
completing
the square

$$x^2 - 6x - 16 = 0$$

$$x^2 - 6x = 16$$

$$x^2 - 6x + \underline{9} = 16 + \underline{9}$$

$$(x-3)(x-3) = 25$$

$$(x-3)^2 = 25$$

$$\sqrt{(x-3)^2} = \pm \sqrt{25}$$

$$x-3 = \pm 5$$

$$x = 3 \pm 5$$

Solve $x^2 - 6x - 16 = 0$ by completing the square

$$x^2 - 6x = 16$$
$$x^2 - 6x + 9 = 16 + 9$$
$$(x - 3)(x - 3) = 25$$
$$(x - 3)^2 = 25$$
$$\sqrt{(x - 3)^2} = \pm \sqrt{25}$$
$$x - 3 = \pm 5$$
$$x = 3 \pm 5$$
$$x = 8, -2$$

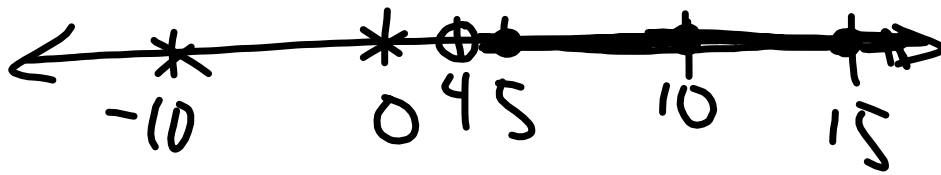
$\frac{1}{2}(-6) = -3$

$(-3)^2 = 9$

Add to both sides

Solve $x^2 + 8x + 7 = 0$

$$\text{Solve } 5x - 3 > 17$$



Solution: $x > 4$ or $(4, \infty)$

$$5x - 3 > 17$$

$$+3 \quad +3$$

$$5x > 20$$

$$\frac{5x}{5} > \frac{20}{5}$$

$$x > 4$$

$$\text{Solve } -3x + 2 \leq -4$$

$$-3x \leq -6$$

When dividing
or multiplying
by a negative,
turn inequality
around.

$$\frac{-3x}{-3} \geq \frac{-6}{-3}$$

$$x \geq 2$$

$$4x < -8$$

$$x < -2$$