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To solve for  $x$  we have to undo 4 operations, which are:

Subtract 3

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Square it

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Square it

Multiply by 2

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▶ Like Frog and Toad

we undo these operations in the opposite order.



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To solve for  $x$  we have to undo 4 operations, which are:

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Now, we can Take the Square Root of both sides to get:

$$\sqrt{(x-3)^2} = \sqrt{4}$$

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▶ why?

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$$|x-3| = \sqrt{(x-3)^2} = \sqrt{4} = 2$$

Since  $|x-3| = 2$ , we know that  $x-3 = \pm 2$

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$$|x-3| = \sqrt{(x-3)^2} = \sqrt{4} = 2$$

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Adding 3 to both sides gives the solutions:  $x = 3 \pm 2$

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we undo these operations in the opposite order.

**Adding 8** to both sides gives us:

$$2(x-3)^2 = 2(x-3)^2 - 8 + 8 = 0 + 8 = 8$$

Now, we need to **Divide by 2** to get:

$$(x-3)^2 = \frac{2(x-3)^2}{2} = \frac{8}{2} = 4$$

Now, we can **Take the Square Root** of both sides to get:

▶ why?

$$|x-3| = \sqrt{(x-3)^2} = \sqrt{4} = 2$$

Since  $|x-3| = 2$ , we know that  $x-3 = \pm 2$

**Adding 3** to both sides gives the solutions:  $x = 3 \pm 2 = 1, 5$