

$$\sqrt{x} + \frac{1}{\sqrt{x}} < 4.$$

First, square it. as. $\frac{1}{x} + x + 2 < 16.$

we can look it as a function. $\frac{1}{x} + x + 2 = 16.$

$x + \frac{1}{x} = 14$, then, multiply x .

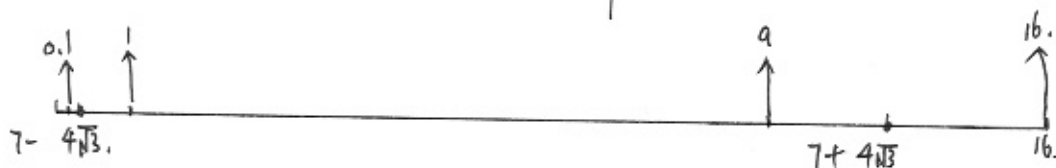
$$x^2 + 1 = 14x = x^2 - 14x + 1 = 0.$$

use the function $\frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

$$\text{as } \frac{14 \pm \sqrt{14^2 - 4}}{2} \quad \#18$$

$$\frac{14 \pm 8\sqrt{3}}{2} = \boxed{7 \pm 4\sqrt{3}}$$

draw a line and show the point $7+4\sqrt{3}$ and $7-4\sqrt{3}$.



$$\sqrt{3} \approx 1.72. \quad 7-4\sqrt{3} \approx 0.12.$$

$$7+4\sqrt{3} \approx 13.88.$$

we use the number to identify the function, so we can get answer.

if $x=0.1$.

$$\sqrt{\frac{1}{10}} + \frac{1}{\sqrt{\frac{1}{10}}} < 4$$

$$\left(\frac{1}{10}\right)^2 - \frac{14}{10} + 1 > 0 \quad \#0$$

$$-0.39 > 0$$

X

if $x=1$

$$1 + \frac{1}{1} < 4$$

$$2 < 4$$

✓

if $x=9$

$$3 + \frac{1}{3} < 4$$

$$3\frac{1}{3} < 4$$

✓

if $x=16$.

$$4 + \frac{1}{4} < 4$$

$$4\frac{1}{4} < 4$$

X

so we know that the x

$$7-4\sqrt{3} < x < 7+4\sqrt{3}.$$

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