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

Since the expression contains $\sqrt{x}$ and $\frac{1}{\sqrt{x}}$, $x>0$ for inequalities to hold any meaning; if $x<0$, there would be complex numbers involved, which do not conform to inequalities; if $x=0$, $\frac{1}{\sqrt{x}}$ is undefined.

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

$$()\times\sqrt{x}$$

The inequality sign is unchanged because $\sqrt{x}>0$

$$(\sqrt{x}+\frac{1}{\sqrt{x}})\times\sqrt{x}<4\sqrt{x}$$

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

$$()^2$$

$$(x+1)^2<(4\sqrt{x})^2$$

Since we know that if $|a|<|b|$, it implies $a^2<b^2$. Our assumption of $x+1>0$ and $4\sqrt{x}>0$ is justified because $x>0$

$$(x+1)^2<16x$$

$$x^2+2x+1<16x$$

$$()-16x$$

$$x^2+2x+1-16x<0$$

$$x^2-14x+1<0$$

$$x=\frac{-b\pm\sqrt{b^2-4ac}}{2a}=\frac{-(-14)\pm\sqrt{(-14)^2-4(1)(1)}}{2(1)}=\frac{14\pm\sqrt{192}}{2}=\frac{14\pm\sqrt{64\times 3}}{2}$$

$$x=\frac{14\pm\sqrt{64}\sqrt{3}}{2}=\frac{14\pm 8\sqrt{3}}{2}=7\pm 4\sqrt{3}$$

By drawing the number line, we obtain:

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