

Answer on Question #83681 – Math – Calculus

Question

Find a rational number between square root of 7 and square root of 11.

Find an irrational number between square root of 7 and square root of 11.

Solution

A rational number between $\sqrt{7}$ and $\sqrt{11}$ is 3 because

$2.65 \approx \sqrt{7} < 3 < \sqrt{11} \approx 3.32$ (it is true because squares $7 < 9 < 11$ will get the correct inequality, besides, we could choose any rational number in this interval, for example, $\frac{20}{7}$).

An irrational number between $\sqrt{7}$ and $\sqrt{11}$ is $\frac{\sqrt{7}+\sqrt{11}}{2}$ because

$\sqrt{7} < \frac{\sqrt{7}+\sqrt{11}}{2} < \sqrt{11}$ (it is true because the inequality

$\sqrt{7} + \sqrt{7} < \sqrt{7} + \sqrt{11} < \sqrt{11} + \sqrt{11}$ holds true, besides, we could choose any number in this interval, for example, $\sqrt{8} = 2\sqrt{2}$).

Answer: 3; $\frac{\sqrt{7}+\sqrt{11}}{2}$.