

Task. Give an example of a rational number between $\sqrt{2}$ and $\sqrt{4}$.

Solution. In fact there are infinitely many rational numbers between any two distinct numbers $a < b$. For instance it is so for $a = \sqrt{2}$ and $b = \sqrt{4}$.

To give an example it suffices to find a rational number $q > 0$ such that

$$2 < q^2 < 4,$$

then

$$\sqrt{2} < q < \sqrt{4}.$$

Notice that

$$2 < 1.5^2 = 2.25 < 1.6^2 = 2.56 < 1.7^2 = 2.89 < 4$$

Therefore

$$\sqrt{2} < 1.5 < 1.6 < 1.7 < \sqrt{4}.$$

Thus we have found even 3 rational numbers between $\sqrt{2}$ and $\sqrt{4}$.

Answer. 1.5, 1.6, 1.7.