

Q) $\sqrt{x} + y = 11$ and $\sqrt{y} + x = 7$. Find integer solutions for x and y.

Answer:

From the equations it is clear that x and y both should be perfect squares, since addition of an irrational to another irrational or rational number doesn't give a rational number.

We proceed with trial and error.

Putting $x=1$, y gives 10, which is not a perfect square.

$x = 4$ gives, $y = 9$ which is a perfect square. Therefore, it is the solution.