

Applications of Surds

1. Find the length of the diagonal of a square that has a side length of 10 centimetres.
2. Find the length of the diagonal of a square that has a side length of a centimetres.
3. Find the length of the diagonal of a rectangle that has a length of a cm and a width of b cm.
4. Find the length of the 'space diagonal' of a rectangular box that has a length of a cm, a width of b cm, and a height of c cm.
5. Find the length of the 'space diagonal' of a cube that has a length of a cm.
- 6**. Solve the following equation, setting out clearly and describing each significant step in your solution:

$$\sqrt{(x^2 - x)} = 2\sqrt{x} - x$$

Hint: Square both sides. Recall: $(a - b)^2 = a^2 - 2ab + b^2$.