

GEOMETRY: PROPERTIES OF SHAPE

NC. Objective: To use angle sum facts and other properties to make deductions about missing angles and use the properties of rectangles to find missing lengths and angles.

1. Inside the castle, Hamlet found a hidden map. The map showed several rooms connected by passageways. The angles in the first room are as follows:

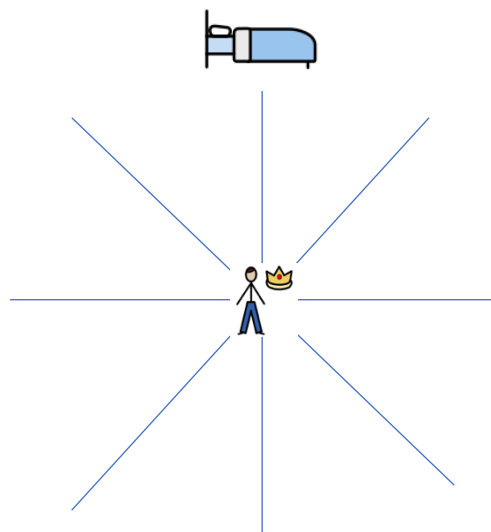
- One angle is 90° .
- One angle is 60° .
- The last angle is missing.



What is the missing angle in this triangle-shaped room?

2. Use the clues listed below to label the diagram. Hamlet's bed has been labelled for you.

- Hamlet is standing in the middle of his bedroom.
- He is facing his bed.
- He turns 180° and is facing the door.
- He then makes a 90° turn clockwise and is facing his desk.
- He turns another 90° clockwise and then makes a three-quarter turn anticlockwise. He is now facing the mirror.



3. The castle guards lined up in a rectangular grid formation, 10 soldiers wide and 6 soldiers deep. Each soldier took up 1m^2 of space. The soldiers were all spaced out evenly at 1.5m apart.



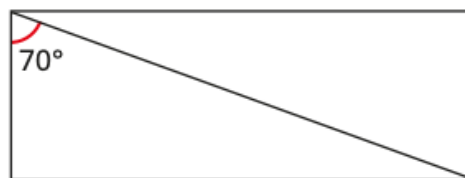
What is the perimeter of the rectangular area occupied by the soldiers?

4. The Queen's chamber in Elsinore Castle is rectangular. The length of one side is 15m and the other side is missing. One of the interior angles of the chamber is marked as 90° .



- Draw a diagram of the chamber including the information you know.
- What is the size of all other angles in the rectangle?
- If the perimeter of the chamber is 50m , what is the length of the missing side?

5. A rectangle is cut in half diagonally.



The two triangles are then put together to form an isosceles triangle.
Work out the sizes of the angles in the isosceles triangle and label them on the diagram.

