FURTHER MATHEMATICS: BRIDGING ACTIVITY

Once you have completed your maths bridging work your task is to complete these geometric maths problems.

These questions are designed to be challenging and push you out of your comfort zone, so be prepared to be stumped! You will find it useful to annotate on to the diagrams, adding angles, radii and other additional information to build toward a solution.

Good luck – and enjoy!
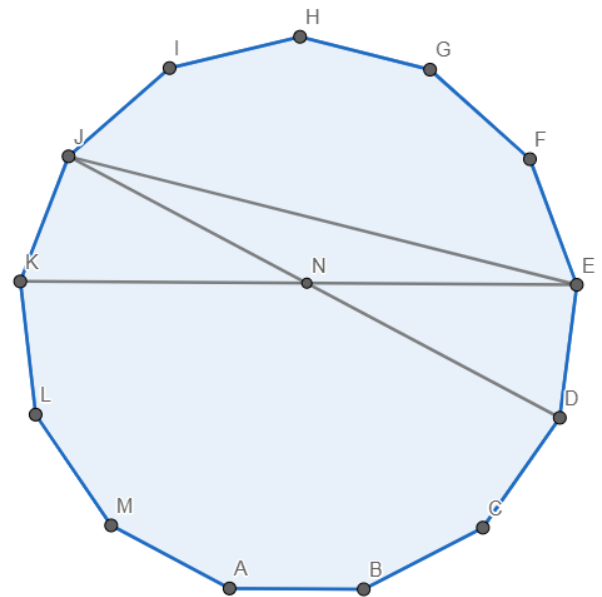
Thinking skills problems:

Puzzle 1

ABCDEFGHIJKLM is a regular tridecagon.
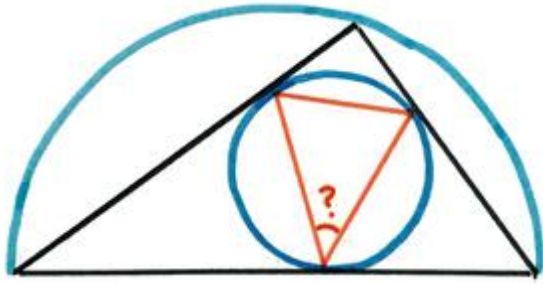
DJ, EJ & EK are straight lines.

Lines DJ & EK intersect at point N.

What are the interior angles of triangle EJN?

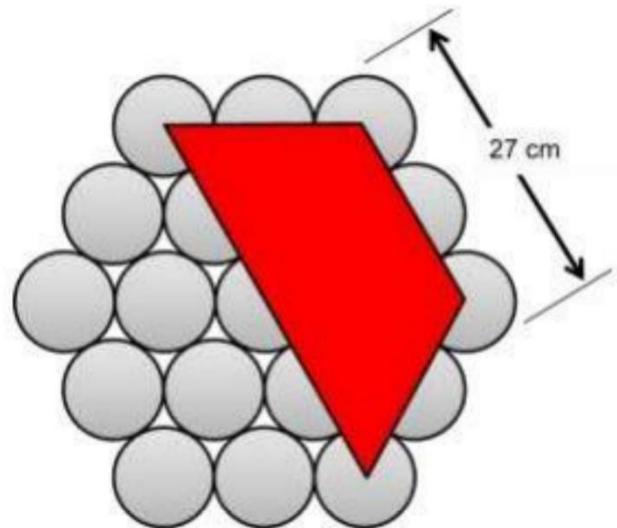What do you notice about angle ENJ?

Puzzle 2

Find the angle in the triangle in the circle in the triangle in the semi-circle.

Puzzle 3
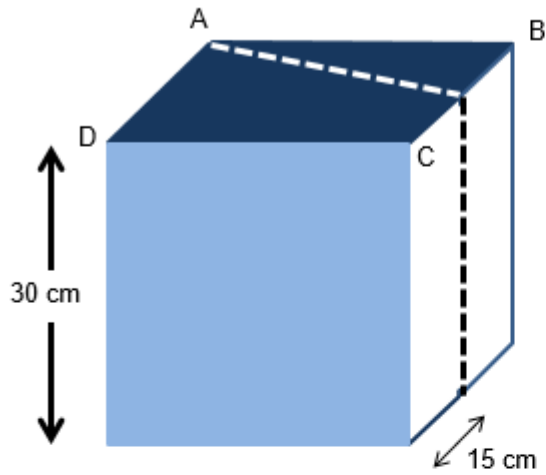
This diagram shows 19 identical circles arranged in a hexagon.

All of the vertices of the trapezium are in the centre of a circle.
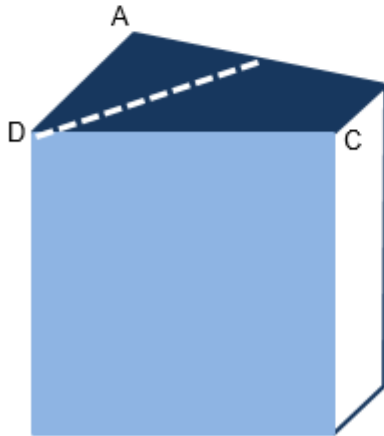
Find the area of the trapezium.

27 cm

Cube Slice

A cube is sliced vertically along the line shown in the diagram and the smaller part is thrown away.
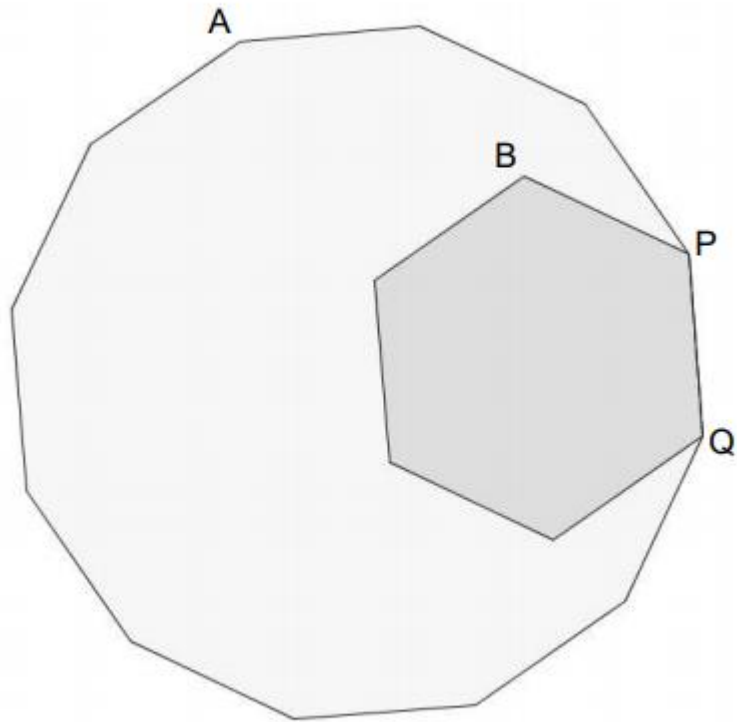
A
B
D
C
30 cm
15 cm

The cube is going to be sliced vertically downwards again by a line going through corner D.

Where would the slice have to be to split the cube into two equal volumes?
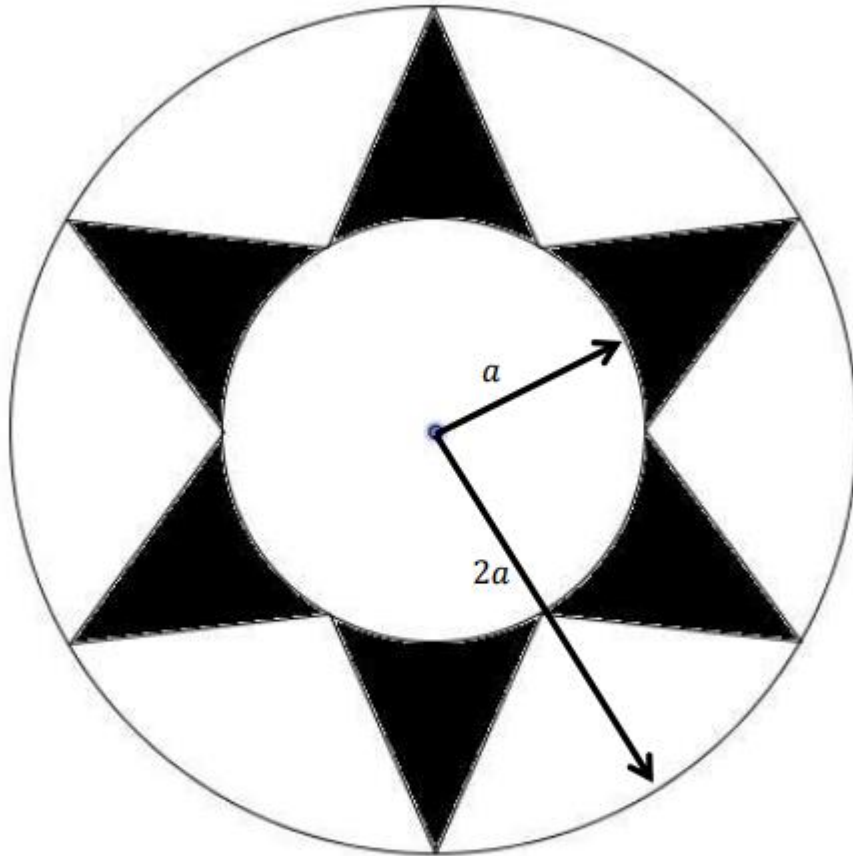
A
D
C

Dodecagon and Hexagon

This diagram shows a regular dodecagon and a regular hexagon with a common side PQ.

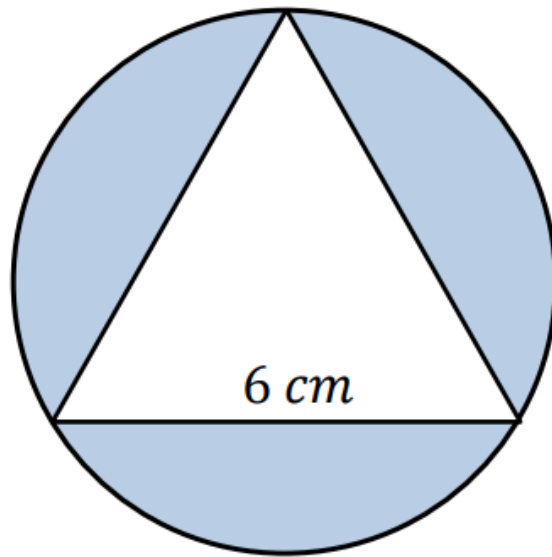Show that the points A, B and P all lie on the same straight line.

Shaded circle 1

What proportion of the larger circle is shaded?

Circle area 1

This diagram shows an equilateral triangle of side length 6 cm drawn inside a circle so that each corner touches the circumference of the circle.

6 cm

What area of the circle is shaded?