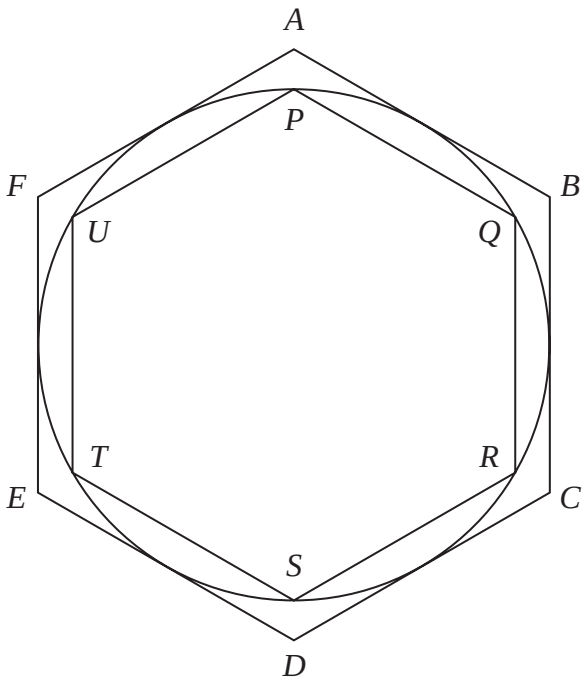
1 The diagram shows a circle, radius r cm and two regular hexagons.



Each side of the larger hexagon *ABCDEF* is a tangent to the circle.
Each side of the smaller hexagon *PQRSTU* is a chord of the circle.

By considering perimeters, show that

$$3 < \pi < 2\sqrt{3}$$

(Total for Question 1 is 4 marks)