



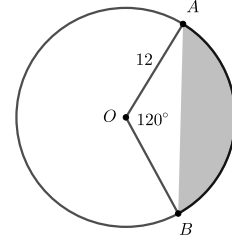
Intermediate Math Circles

Triangles, Circles and Area

Problem Set 2

Exercise 6

A and B are on the circle centred at O . Given $\angle AOB = 120^\circ$ and the radius of the circle is 12, find the area of the shaded region.

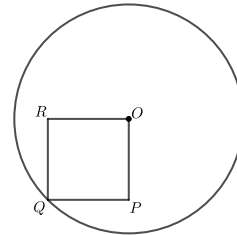


Exercise 7

In previous CEMC contests, there are a number of questions that use areas and circles. Here are a few you can try.

a) 2020 Cayley # 16

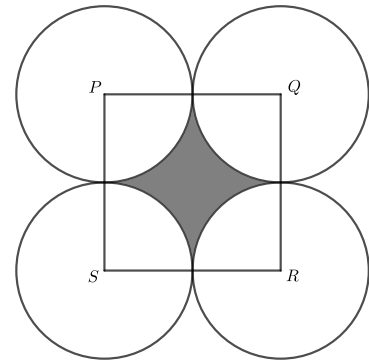
In the diagram, the circle has centre O and square $OPQR$ has vertex Q on the circle. If the area of the circle is 72π , the area of the square is (A) 38 (B) 48 (C) 25 (D) 12 (E) 36



b) Pascal 2013 # 18

In the diagram, $PQRS$ is a square with side length 2. Each of $P, Q, R,$ and S is the centre of a circle with radius 1. What is the area of the shaded region?

(A) $16 - \pi^2$ (B) $16 - 4\pi$ (C) $4 - 4\pi$ (D) $4 - 4\pi^2$ (E) $4 - \pi$



c) 2018 Pascal # 23

In the diagram, two larger circles with radius 1 have centres P and Q . Also, the smaller circle has diameter PQ . The region inside the two larger circles and outside the smaller circle is shaded. The area of the shaded region is closest to (A) 0.36 (B) 0.38 (C) 0.40 (D) 0.42 (E) 0.44

