

PENGAYAAN MATEMATIKA

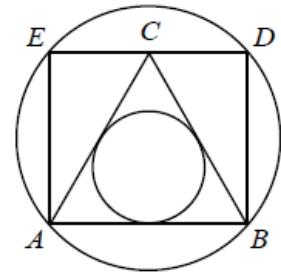
SOAL-SOAL GEOMETRI 5

1. COMC, 2000

Solve the equation $4\left(16^{\sin^2 x}\right) = 2^{6 \sin x}$, for $0 \leq x \leq 2\pi$.

2. COMC, 2000

In the diagram, $\triangle ABC$ is equilateral and the radius of its inscribed circle is 1. A larger circle is drawn through the vertices of the rectangle $ABDE$. What is the diameter of the larger circle?



3. COMC, 2000

Triangle ABC has vertices $A(0, 0)$, $B(9, 0)$ and $C(0, 6)$. The points P and Q lie on side AB such that $AP = PQ = QB$. Similarly, the points R and S lie on side AC so that $AR = RS = SC$.

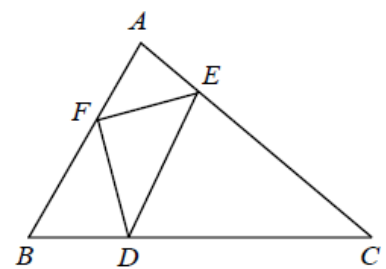
The vertex C is joined to each of the points P and Q . In the same way, B is joined to R and S .

- Determine the equation of the line through the points R and B .
- Determine the equation of the line through the points P and C .
- The line segments PC and RB intersect at X , and the line segments QC and SB intersect at Y . Prove that the points A , X and Y lie on the same straight line.

4. COMC, 2000

In $\triangle ABC$, the points D , E and F are on sides BC , CA and AB , respectively, such that $\angle AFE = \angle BFD$, $\angle BDF = \angle CDE$, and $\angle CED = \angle AEF$.

- Prove that $\angle BDF = \angle BAC$.
- If $AB = 5$, $BC = 8$ and $CA = 7$, determine the length of BD .



5. COMC, 2001

In the given diagram, what is the value of x ?

