PENGAYAAN MATEMATIKA
SOAL-SOAL GEOMETRI 4

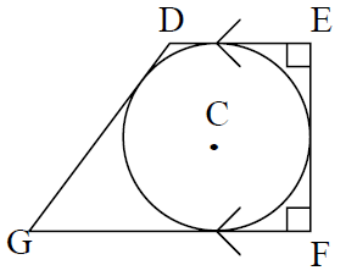
1. COMC, 1999

Determine all x which satisfy:

$$2\sin^3 x + 6\sin^2 x - \sin x - 3 = 0, 0 < x < 2\pi$$

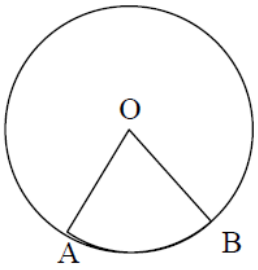
2. COMC, 1999

A trapezoid, $DEFG$, is circumscribed about a circle that has centre C and radius 2, as is shown. The shorter of the two parallel sides, DE, has length 3 and angles DEF and EFG are right angles. Determine the area of the trapezoid.



3. COMC, 1999

The sector OAB of a circle, with centre O, has a perimeter of 12. Determine the radius of the circle which maximizes the area of the sector.



4. COMC, 1999

Two identical triangles each have an area of 24. Their vertices are determined by the intersection of the lines with equations $y = -4, x = 0$ and $y = \frac{-3}{4}x + b$. Determine the two possible values for b.

5. COMC, 1999

Triangle ABC is right angled with its right angle at A. The points P and Q are on the hypotenuse BC such that $BP = PQ = QC$, $AP = 3$ and $AQ = 4$. Determine the length of each side of $\triangle ABC$.