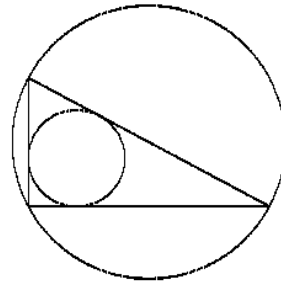


# PENGAYAAN MATEMATIKA

## SOAL-SOAL GEOMETRI 1

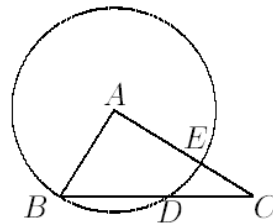
1. COMC, 1996

The vertices of a right angled triangle are on a circle of radius  $R$  and the sides of the triangle are tangent to another circle of radius  $r$ . If the lengths of the sides about the right angle are 16 and 30, determine the value of  $R + r$ .



2. COMC, 1996

Triangle  $ABC$  is right angled at  $A$ . The circle with center  $A$  and radius  $AB$  cuts  $BC$  and  $AC$  internally at  $D$  and  $E$  respectively. If  $BD = 20$  and  $DC = 16$ , determine  $AC^2$ .

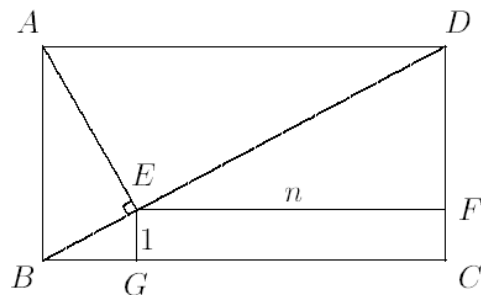


3. COMC, 1996

Determine the sum of the angles  $A, B$ , where  $0^\circ \leq A, B \leq 180^\circ$  and  $\sin A + \sin B = \sqrt{\frac{3}{2}}$ ,  $\cos A + \cos B = \sqrt{\frac{1}{2}}$ .

4. COMC, 1996

A rectangle  $ABCD$  has diagonal of length  $d$ . The line  $AE$  is drawn perpendicular to the diagonal  $BD$ . The sides of the rectangle  $EFCG$  have lengths  $n$  and 1. Prove  $d^{2/3} = n^{2/3} + 1$ .



5. COMC, 1997

In triangle  $ABC$ ,  $\angle A$  equals 120 degrees. A point  $D$  is inside the triangle such that  $\angle DBC = 2 \cdot \angle ABD$  and  $\angle DCB = 2 \cdot \angle ACD$ . Determine the measure, in degrees, of  $\angle BDC$ .

