

STEP II, 2010, Q6

- 6 Each edge of the tetrahedron $ABCD$ has unit length. The face ABC is horizontal, and P is the point in ABC that is vertically below D .
- (i) Find the length of PD .
 - (ii) Show that the cosine of the angle between adjacent faces of the tetrahedron is $1/3$.
 - (iii) Find the radius of the largest sphere that can fit inside the tetrahedron.



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