

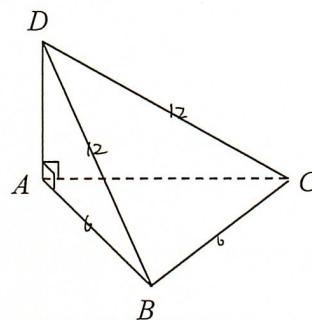


Name: _____ () Class: _____ Date: _____

MA304.4.X1 – Angle of Inclined Plane

S1. $ABCD$ is a tetrahedron such that the face BCD is isosceles with $BD = CD = 12$ cm, and D is directly above A , with A , B and C on level ground. If $AB = 6$ cm and ABC forms an equilateral triangle, find

- (a) the angle of elevation of D from B



- (b) the angle θ made between the two planes BCD and ABC

(c) the area of triangles ABC and BCD

Hence show that area of $\triangle ABC = \text{area of } \triangle BCD \times \cos \theta$.

In general, we have the following result:

Given a plane with area A which is inclined at an angle θ to the horizontal, the area of its projection vertically onto the horizontal is $A \cos \theta$.

S2. The projection of an inclined plane onto the ground is such that the area of the projected plane is 30 cm^2 and the area of the inclined plane is 45 cm^2 . Find the angle of inclination of the plane above the ground.