

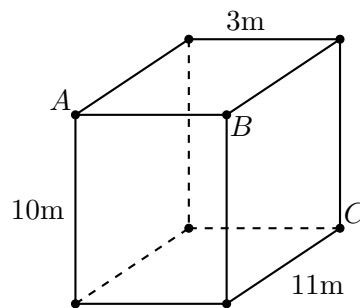
Applied Mathematics APM01A1

February 15, 2017

Tutorial 1

Question 1

Calculate the angles inside the triangle BAC in the following $3 \times 10 \times 11$ rectangular box:



Question 2

Consider the point $P(-5, -14, 2)$

1. How far is P from the origin O ?
2. How far is P from the XZ -plane?
3. What angle does OP make with the positive X -axis?
4. Assume that the positive Z -axis is directed upwards, find the angle of elevation of P relative to the origin.

Question 3

Let P be a point with positive coordinates. Suppose P is at a distance of $\sqrt{60}$ metres from the Y -axis and the y -coordinate of P is 2.

1. Find the angle that OP makes with the positive Y-axis.
2. Assume also that P is $\sqrt{17}$ m from the Z-axis. Find the z -coordinate.

Question 4

Consider two points $A(3, -2, 1)$ and $B(-1, 1, 1)$.

1. What are the (x, y, z) components of the displacement \overline{AB} ?
2. What is the magnitude of \overline{AB} ?

Question 5

Do P1.3.2 page 14 of the prescribed lecture notes (CMV).

HINT: Draw in your reference system with the 3 axes, and follow the path from the origin step-by-step.