Answer on Question #79698 Physics / Other

Find the direction cosines of the vector joining the two points A (4, 2, 2) and B (7, 6, 14)

Solution:

Vector **AB** is given by

$$\mathbf{AB} = (7-4, 6-2, 14-2) = (3, 4, 12)$$

The direction cosines

$$\cos a = \frac{x}{\sqrt{x^2+y^2+z^2}} = \frac{3}{\sqrt{3^2+4^2+12^2}} = \frac{3}{13}$$

$$\cos b = \frac{y}{\sqrt{x^2+y^2+z^2}} = \frac{4}{\sqrt{3^2+4^2+12^2}} = \frac{4}{13}$$

$$\cos c = \frac{z}{\sqrt{x^2+y^2+z^2}} = \frac{12}{\sqrt{3^2+4^2+12^2}} = \frac{12}{13}$$

Answers:

$\cos a = \frac{3}{13}$

$\cos b = \frac{4}{13}$

$\cos c = \frac{12}{13}$