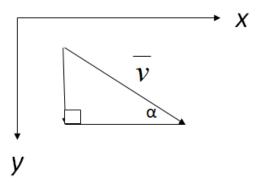
Answer on Question #84923 - Physics - Mechanics | Relativity

Task:

When rolled down a mountainside at 8.0 m/s, the vertical component of its velocity vector was 2.0 m/s. What was the angle of the mountain surface above the horizontal?

Solution:

Graphic image of the task:



$$\begin{vmatrix} \overline{v} \\ \overline{v}_y \end{vmatrix} = 8 \frac{m}{s}$$

$$\begin{vmatrix} \overline{v}_y \\ \overline{v}_y \end{vmatrix} = 2 \frac{m}{s}$$

$$\alpha = \arcsin(\frac{|\overline{v}_y|}{|\overline{v}|}) = \arcsin(0.25) = 14.5^{\circ}$$

Answer: 14.5°

Answer provided by https://www.AssignmentExpert.com