Answer on Question #47780, Physics, Computational Physics

Question:

Decent vehicle is traveling vertical@ 5.5 m/s and has horizontal velocity of 3.5 m/s. What speed and angle is descent path?

Answer:

Total speed equals (using Pythagorean theorem):

$$v = \sqrt{v_v^2 + v_h^2} \cong 6.5 \frac{m}{s}$$

where v_v is vertical velocity, v_h is horizontal velocity.

Angle equals:

$$\tan \alpha = \frac{v_v}{v_h}$$

$$\alpha = \arctan \frac{v_v}{v_h} = 57.5°$$

Answer: $6.5 \frac{m}{s}, 57.5°$