

Name:

Quiz (4)-Sec (7)-Ch(7)

S.N:

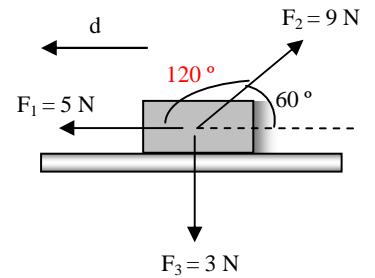
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Key

Phys 101 (Term 032)-(F. Enaya)

Q. The figure shows three forces applied to a trunk that moves leftward by 3 m over a frictionless floor. The force magnitudes indicated in the figure. During the displacement :

If the trunk starts **moving from rest**, **what is the final speed** of the trunk at the end of 3 m. (*solve it based on work – energy theorem*)



$$W_{\text{net}} = \Delta KE = (KE_f - KE_i), \text{ where } KE_i = 0$$

$$W_{\text{net}} = W_1 + W_2 + W_3 = (5 \times 3 \times \cos 0) + (9 \times 3 \times \cos 120) + (3 \times 3 \times \cos 90)$$

$$W_{\text{net}} = 1.5\text{ J} = KE_f = \frac{1}{2} m v_f^2$$

$$\Rightarrow 1.5 = \frac{1}{2} m v_f^2 \Rightarrow 3 = m v_f^2 \Rightarrow v_f = (3/m)^{1/2}$$