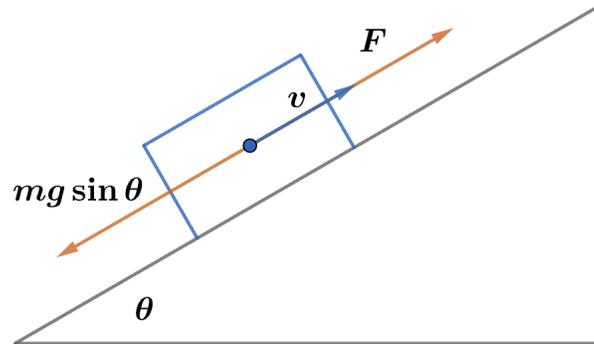


2014 F=ma Exam: Problem 15

Kevin S. Huang



To move at constant velocity, a force

$$F = mg \sin \theta$$

must be supplied on the car. To travel at speed v , the power required is

$$P = Fv = mgv \sin \theta$$

Since there are no energy losses and $\theta = 30^\circ$,

$$v = \frac{P}{mg \sin \theta} = \frac{2P}{mg}$$

so the answer is .