

38. (a) The force \vec{F} of the incline is a combination of normal and friction force which is serving to “cancel” the tendency of the box to fall downward (due to its 19.6 N weight). Thus, $\vec{F} = mg$ upward. In this part of the problem, the angle ϕ between the belt and \vec{F} is 80° . From Eq. 7-47, we have

$$P = Fv \cos \phi = (19.6)(0.50) \cos 80^\circ$$

which leads to $P = 1.7$ W.

- (b) Now the angle between the belt and \vec{F} is 90° , so that $P = 0$.
(c) In this part, the angle between the belt and \vec{F} is 100° , so that $P = (19.6)(0.50) \cos 100^\circ = -1.7$ W.