

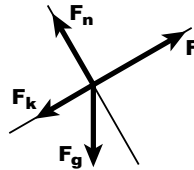
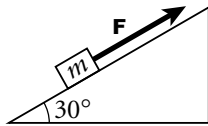
## Section

**5-1**

## HOLT PHYSICS

**Math Skills***Work*

A crate with a mass of  $m$  is on a ramp that is inclined at an angle of  $30^\circ$  from the horizontal. A force with a magnitude of  $F$  directed parallel to the ramp is used to pull the crate with a constant speed up the ramp a distance of  $d$ .



1. What is the work done on the crate by the applied force  $F$ ?  
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2. What is the work done on the crate by the gravitational force exerted on the crate by Earth?  
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3. What is the work done on the crate by the normal force, with a magnitude of  $F_n$ , exerted on the crate by the ramp? (Hint: recall that the normal force is perpendicular to the surface of the ramp.)  
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4. What is the work done on the crate by the frictional force  $F_k$ ?  
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5. What is the total force acting on the crate?  
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6. What is the work done on the crate by the total force?  
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