

Chapter 6

Questions

12.

The normal force is larger than mg because the hand is inputting an addition force, say f_h , that would generate a normal force of $fg + f_h$

15.

- Since the mass is doubled, and $F = ma$, the acceleration is halved. According to $v_f = v_0t + at$, with a $v_f = 0$, time to stop must at least be doubled. Therefore, the distance d must also be doubled.
- If the initial velocity is doubled, the time to slow down to $v = 0$ will also be doubled, thus the block will travel twice the distance.

16.

The friction points south, away from the direction the crate is accelerating. This is because it's acting as a normal force to the acceleration of the crate, and thus must point opposite to the direction it's accelerating in.

Questions

26.

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- $F_s = 10(9.8)(0.5) = 49N$. Thus, a force $> 49N$ is needed. Rearranging, $49 = 10(a)(0.5) \Rightarrow a =$