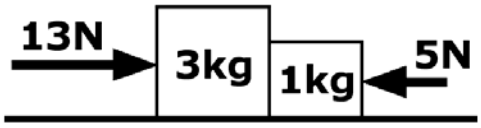
Practical Discussion Problems (5)

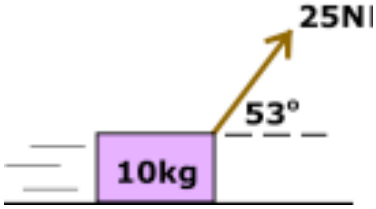
Dynamics (Newton's Laws of Motion)

Q1: Two blocks are in contact with each other on a horizontal, frictionless surface, and they have two horizontal forces applied as shown. Which of the following statements are true? (Mark ALL that apply.)



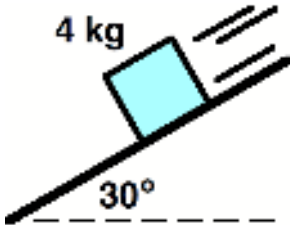
(A) The magnitude of the net force on the two blocks is 18N.
(B) The acceleration of the two blocks is 2m/s^2.
(C) The net force on the 3kg block is 6N.
(D) The 3kg block exerts a normal force of 7N on the 1kg block.
(E) The magnitude of the force exerted by the 3kg block on the 1kg block is larger than the magnitude of the force exerted by the 1kg block on the 3kg block.

Q2: A 10kg crate is pulled at constant speed as shown on a rough surface. The coefficient of kinetic friction is CLOSEST to:



(A) 0.15 **(B) 0.20** **(C) 0.25**
(D) 0.30 **(E) The coefficient of kinetic friction cannot be determined.**

Q3: A 4kg block slides down a rough 30o incline having a coefficient of kinetic friction of 0.20 as shown. Which of the following statements about this situation are true? (Mark **ALL** that apply.)



(A) The normal force on the block is 40N.
(B) The friction force on the block is about 6.9N.
(C) The net force on the block is 20N.
(D) The acceleration of the block is about 3.3m/s2.
(E) None of the statements above are true.