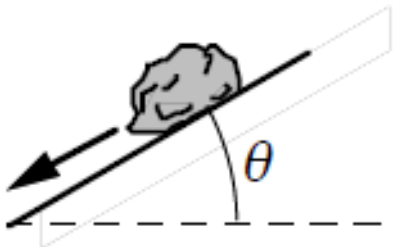


Quiz #5: Applying Newton's Laws

Problem 1 (2 points)

A 2.0-N rock slides on a frictionless inclined plane. Which one of the following statements is true concerning the normal force that the plane exerts on the rock?

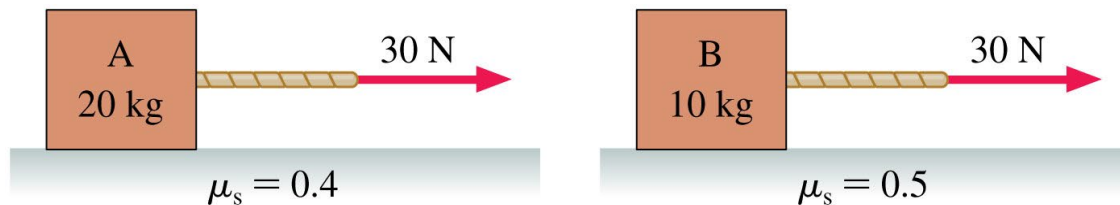


- a) The normal force is zero newtons.
- b) The normal force is 2.0 N.
- c) The normal force is greater than 2.0 N.
- d) The normal force *increases* as the angle of inclination, θ , is *increased*.
- e) The normal force is less than 2.0 N, but greater than zero newtons.

Problem 2 (3 points)

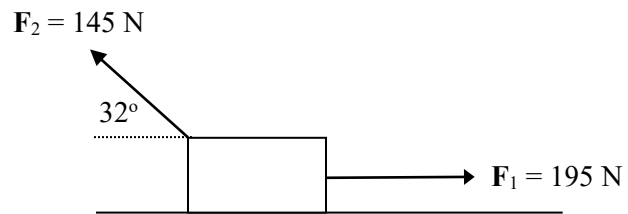
Boxes A and B in the figure below both remain at rest as a 30 N force is applied to each. Is the force of friction on box A greater than, less than, or equal to the force of friction on box B?

Explain your answer.



Problem 3 (5 points)

A 25 kg crate on a frictionless surface is acted upon by two forces, F_1 and F_2 , as shown in the figure below.



a) Draw a free-body diagram of the forces acting on the crate.

b) What is the normal force acting on the crate?

c) What is the acceleration (magnitude and direction) of the crate?