Name_____Period_____Date_____

Extra Credit / Forces Practice Problem Set

1. Sven pulls a 130 kg sled full of bricks with a force of 400 N 30 degrees from the horizontal. What is the horizontal acceleration of the sled? (*Ans: 2.66 m/s^2)*

2. Barker is unloading 20 kg bottles of water from his delivery truck when one of the bottles tips over and slides down the truck ramp that is inclined at an angle of 30 degrees from the ground. What amount of force moves the bottle down the ramp? (*Ans: 98 N)*

3. Calculate the normal force…
   a) when you exert an upward force of 40 N on an object with a mass of 10kg… (*Ans: 58.1N)*

   b) and when you exert a downward force of 40N on an object with a mass of 10kg. (*Ans: 138N)*

   c) In general, how do you find the normal force when it doesn't equal mg?

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4. In her physics lab, Molly puts a 1.0 kg mass on a 2.0 kg block of wood. She pulls the combination across another wooden board with a constant speed to determine the coefficient of sliding friction between the two surfaces. If Molly must pull with a force of 6.0 N, what coefficient of kinetic friction does she calculate for wood on wood?

5. Linc, the 65.0 kg lifeguard, slides down a water slide that is inclined at an angle of 35.0 degrees to the horizontal, into the community swimming pool. If the force of friction on the slide is 27N, what is Linc's acceleration as he slides down?

6. Erma receives a 5.00-kg package in the mail tied with a string that goes around each of the 4 sides of the box. If Erma lifts the box by the string in the center so that each piece of string makes an angle of 45 degrees with the vertical, what is the tension in each piece of string? (*Ans: 17N)*