WORKSHEET #4

	Name:	
١.	A 7.50 kg ball is thrown. It has an initial velocity of 8.468 m/s. It travels a horizontal distance of 7.3 m	
	in 1.25 s. Find: (a) The weight of the ball. (b) The initial kinetic energy of the ball. (c) The angle of	
	the ball's initial velocity with the horizontal.	

2. A 52.5 kg crate rests on a surface and has a coefficient of kinetic friction of 0.285. A rope is attached to it. You pull it sideways exerting a force of 145 N. (a) If the rope makes an angle of 25.0° with the horizontal, what is the acceleration of the crate? (b) How much time to drag it 2.50 m?

3. Draw a picture of a pendulum showing its swing. Label the following points: (a) point of maximum velocity, (b) point of minimum velocity, (c) point where the potential energy is greatest, (d) point where kinetic energy is greatest, (e) if the period of the pendulum is 0.750 seconds, what is its length? (f) What is the speed of the pendulum at the bottom of its swing if the angle that the thing makes at its maximum displacement is 11.0°?

4.	A pipe is 18.5 cm long and open on one of its ends. (a) What are the frequencies of the first three harmonics that resonate in the pipe? (b) What is the wavelength of the third harmonic?	
5.	An FM radio station's basic frequency has a wavelength of 2.67 m. What is its frequency?	
6.	You have this really hot new car. It has one of the most outstanding sound systems available. Anyway it can like go faster than sound! So. When you are tooling down the test strip at Mach 2 (twice the speed of sound), could you hear the stereo? Explain the reasoning for your answer, whatever it is.	
7.	A frictionless pulley has a light string over the thing attached to two masses as shown. The first mass, m_1 , is 5.34 g and the second mass, m_2 , is 5.39 g. Find (a) the acceleration of the system and (b) the tension in the string. m_1	$m_2^{}$