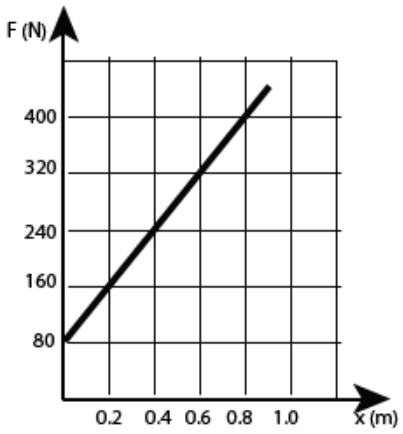
Name: _____ Practice Ph11 2-1

1. Two men pull a -kg box with forces 9.7 N and 7.6 N in the directions shown below. Find the resultant force of the box and the direction in which the box moves.

2. If a 8.0 kg mass is hung on the end of a spring, it is stretched 0.78 meters as a result. What is the force constant of the spring?

3. How much force must be applied to a spring (k = 1400 N/m) in order to extend it by 0.10 m?

4. In the graph at right, determine the spring constant of the spring.



   a) 180 N/m
   b) 610 N/n
   c) 570 N/m
   d) 400 N/m

5. What is the force of gravity (in N) at the Earth's surface on a 35.0 kg mass?

6. What is the force of gravity (in N) of a 63.2 kg rock?

7. A 1.0 kg bird is flying in a 5.0 kg enclosed cage made entirely of glass. ($g = 10\ m/s^2$) The combination will weigh
   a) 50 N
   b) 60 N
   c) 5.0 kg
   d) 4.0 kg
   e) 6.0 kg

8. The force of attraction between any two particles in the universe is directly proportional to:
   a) one divided by the distance between their centers
   b) the sum of their masses
   c) the product of their masses
   d) the square of the distance between their centers

9. The definition of a newton is
   a) the force that gives a 1 kg mass an acceleration of 10 m/s^2
   b) the force of gravity on a 1 kg mass
   c) the force of gravity on a 10 kg mass
   d) the force that gives a 1 kg mass an acceleration of 1 cm/s^2
   e) the force that gives a 1 kg mass an acceleration of 1 m/s^2

10. A 2500 kg space probe is sitting on the surface of an asteroid of mass 4.8×10^{14} kg. The asteroid has a radius of 3.5×10^4 m. What is the force of attraction between the space probe and the asteroid?
    a) 2.3×10^3 N
    b) 9.1×10^{-1} N
    c) 6.5×10^{-2} N
    d) 2.6×10^{-5} N

11. What is the gravitational force exerted on a 63 kg student by her 1400 kg car when their centres are 7.0 m apart?
    a) 1.8×10^3 N
    b) 8.6×10^{-11} N
    c) 1.9×10^{-9} N
    d) 1.2×10^{-7} N

12. If a 1520 kg mass can be dragged over a steel surface at constant speed by a force of 6000 N, what is the coefficient of friction?

13. If the coefficient of friction is 0.25, what force is needed to keep a 565 kg mass moving at constant speed?

14. The coefficient of friction betwen a puck and the surface of an ice rink is 0.00895. If a force of 0.0192 N is able to keep the puck moving at a constant speed what is the mass of the puck?