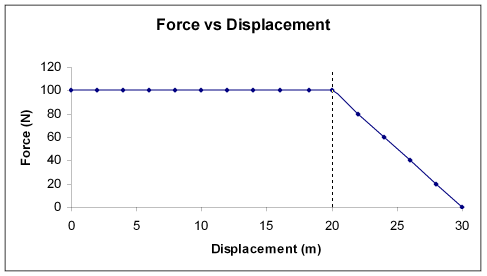
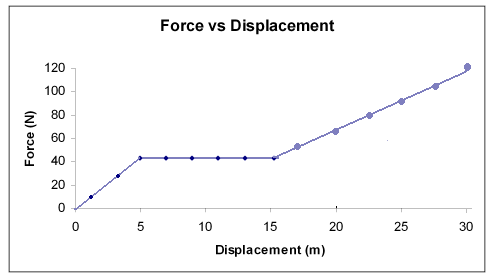
Force vs Displacement Graphs

1. A 5.0 kg cart is pushed along a straight line by a force shown in the graph below. The object is at rest at t = 0 s and d = 0 m. 
   1. During what displacement is the cart’s acceleration constant?
   2. What was the cart acceleration at d = 10 m?
   3. How much work was done on the cart during the first 20 m?
   4. How much time was required for the cart to move 20 m?
   5. How much work was done moving the cart from d = 20 m to d = 30 m?
   6. What was the total amount of work done?
2. A 2.5 kg skateboard is pushed by forces as shown in the graph. At t = 0 the velocity is 0 m/s.



* 1. Determine the acceleration of the skate board at d = 10 m.
  2. Where does the skateboard have the highest acceleration? What is the magnitude of the acceleration at this point?
  3. Determine the amount of work done moving the skateboard from d = 0 m to d = 5 m.
  4. Determine the amount of work done moving the skateboard from d = 5 m to d = 15 m.
  5. Determine the amount of work done moving the skateboard from d = 15 m to d = 30 m.
  6. What is the total amount of work done on the skateboard?