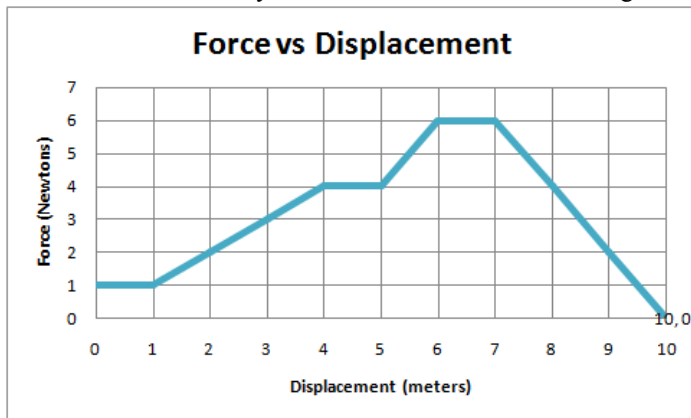


## Work Done By Varying Forces

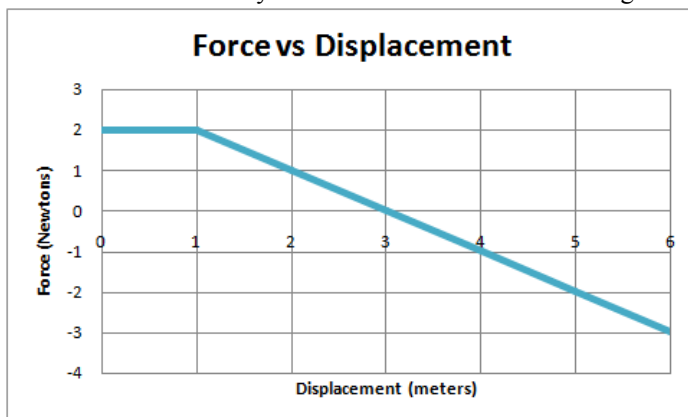
### Solve the following problems.

1. Determine the work done by the force shown below in moving an object from  $X_o = 0$  m to  $X_f = 10$  m.



**Work = 32.5 J**

2. Determine the work done by the force shown below in moving an object from  $X_o = 0$  m to  $X_f = 6$  m.



**Work = 0.5 J on the system not by the system.**

Name: \_\_\_\_\_

Dr. Croom's Physics

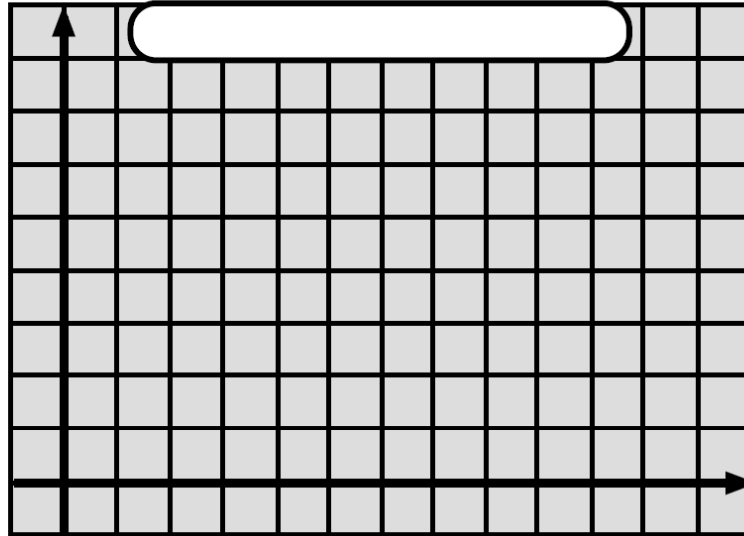
3.

Date: \_\_\_\_\_

Chapter 5B: Oscillatory Motion & Energy

The force exerted on a particle increases linearly from zero (0) N at  $x = 0$  m, to 24.0 N at  $x = 3$  m. It remains constant at 24.0 N from  $x = 3.0$  m to  $x = 8.0$  m, and then decreases linearly to zero at  $x = 11.0$  m.

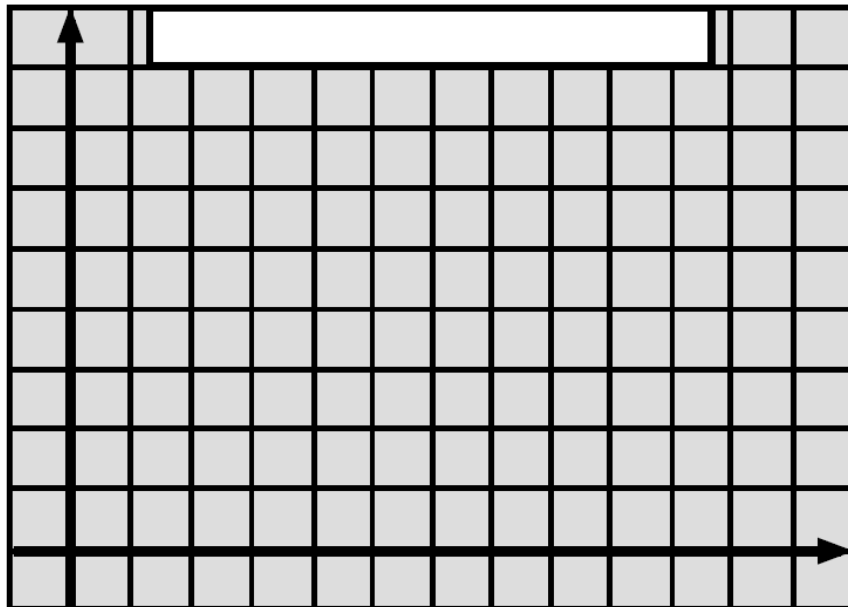
Determine the **work done** to move the particle from  $x = 0$  to  $x = 11.0$  m **graphically** by determining the area under the curve  $F$  (y) vs.  $x$  (x).



**Work = 192 J**

The force exerted on a particle increases linearly from zero (0) N at  $x = 0$  m, to 36.0 N at  $x = 3$  m. It remains constant at 36.0 N from  $x = 3.0$  m to  $x = 8.0$  m, and then decreases linearly to zero at  $x = 12.0$  m.

Determine the **work done** to move the particle from  $x = 0$  to  $x = 12.0$  m **graphically** by determining the area under the curve  $F$  vs.  $x$ .



**Work = 306 J**

4.