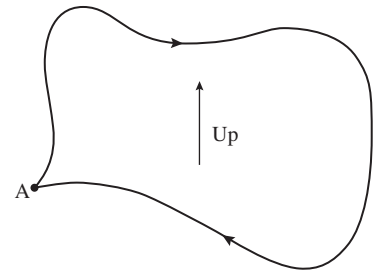


11.5 Force, Work, and Potential Energy

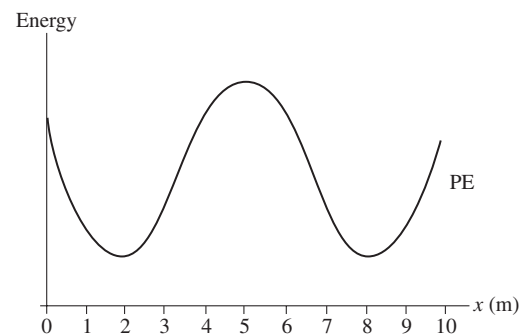
11.6 Finding Force from Potential Energy

15. A particle moves in a vertical plane along a *closed* path, starting at A and eventually returning to its starting point. How much work is done on the particle by gravity? Explain.



16. a. If the force on a particle at some point in space is zero, must its potential energy also be zero at that point? Explain.
- b. If the potential energy of a particle at some point in space is zero, must the force on it also be zero at that point? Explain.

17. The graph shows the potential-energy curve of a particle moving along the x -axis under the influence of a conservative force.



- a. In which intervals of x is the force on the particle to the right?
- b. In which intervals of x is the force on the particle to the left?

- c. At what value or values of x is the magnitude of the force a maximum?

- d. What value or values of x are positions of stable equilibrium?
- e. What value or values of x are positions of unstable equilibrium?
- f. If the particle is released from rest at $x = 0$ m, will it reach $x = 10$ m? Explain.

11.7 Thermal Energy

18. A car traveling at 60 mph slams on its brakes and skids to a halt. What happened to the kinetic energy the car had just before stopping?
19. What energy transformations occur as a skier glides down a gentle slope at constant speed?