Name: _____ Class:___ Date: _____

1. Two balls are thrown from a height of 20 m. Ball one is thrown upward at a speed of 2 m/s. Ball two is thrown downward at a speed of 2 m/s. What is the ratio of the speed of ball one to the speed of ball 2 as each hits the ground?

Select the correct answer.

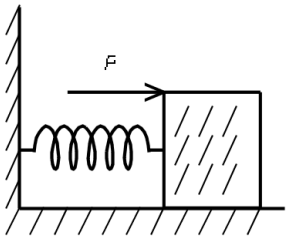
a. 1 : 2
b. 20 : 1
c. 1 : 1
d. 1 : 20
e. 2 : 1

2. Assuming approximately 4×10^{7} m as the circumference of the earth, how long, in seconds, would it take a snail to travel around the circumference if it crawls at 20 cm per minute?

Select the correct answer.

a. 10^{10}
b. 10^{9}
c. 10^{11}
d. 10^{12}
e. 10^{8}

3. A 7.0 kg block on a horizontal frictionless surface is attached to a light spring (force constant = 1.2 kN/m). The block is initially at rest at its equilibrium position when a force (magnitude *P*) acting parallel to the surface is applied to the block, as shown. When the block is 8.0 cm from the equilibrium position, it has a speed of 0.80 m/s. How much work in J is done on the block by the force *P* as the block moves the 8.0 cm?



Select the correct answer.

a. 6.7
b. 4.9
c. 7.4
d. 5.4
e. 6.1

4. If there is no net force on an object, _____.

Select the correct answer.

a. it is accelerating toward the earth.
b. it is weightless.
c. it is in free fall.
d. it is moving in a circle.
e. it is either moving in a straight line at constant speed or it is at rest.

5. A constant force of 15 N in the negative y direction acts on a particle as it moves from the origin to the point (3**i** + 3**j** – 1**k**) m. How much work in J is done by the given force during this displacement?

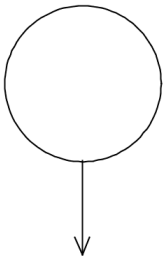
Select the correct answer.

a. + 30
b. – 45
c. + 45
d. – 30
e. + 75

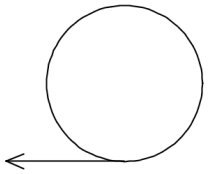
6. A ball is moving clockwise in a circular path in a uniform gravitational field directed downwards. What is the direction of the acceleration vector when the ball is at the lowest point of its path?

Select the correct answer.

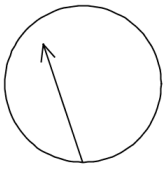
a.



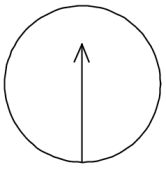
b.



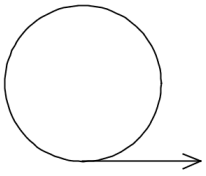
c.



d.



e.



ANSWER KEY

Name: _____ Class:___ Date: _____

1. c
2. a
3. e
4. e
5. b
6. d