

1. Five identical masses of mass M are suspended by a spring stretched a distance of L . If three of the masses are removed, what is the potential energy stored in the spring?

1) $\frac{4}{25} MgL$

2) $\frac{2}{5} MgL^2$

3) $\frac{5}{2} MgL$

4) $\frac{4}{25} MgL^2$

5) $5 MgL$

2. A 1.0 kg object is suspended from a spring with constant $k = 16 \text{ N/m}$. The mass is pulled 0.25 m downward from its equilibrium position and allowed to oscillate. What is the maximum kinetic energy of the object?

1) 0.25 J

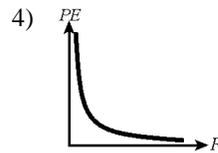
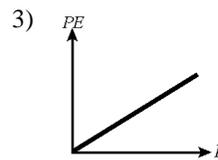
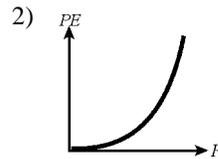
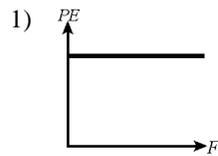
2) 0.50 J

3) 1.0 J

4) 2.0 J

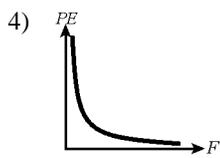
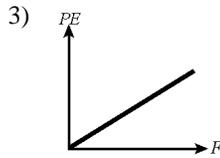
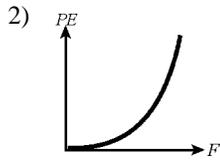
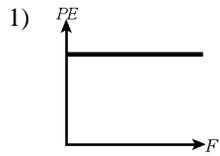
5) 4.0 J

3. Which graph below best represents the relationship between the potential energy stored in a spring (PE) and the change in the length of the spring from its equilibrium position (X)?



5) None of the above

4. Which graph below best represents the relationship between the potential energy stored in a spring (PE) and the force required to keep the spring in equilibrium (F)?



5) None of the above

5. A block of mass 5.0 kg is hung from a vertical spring stretching it 0.40 m. The amount of energy stored in the spring is most nearly

- 1) 0.40 J
- 2) 0.80 J
- 3) 8.0 J
- 4) 10 J
- 5) 20 J

6. Which of the following is true of the energy of a spring-mass system?

- 1) The total energy is greatest when the velocity is greatest.
- 2) The total energy is greatest when the displacement is greatest.
- 3) The potential energy is greatest when the displacement is least.
- 4) The kinetic energy is greatest when the potential energy is least.
- 5) The total energy varies based on the position of the mass.

7. A spring of constant 50 N/m is used to launch a mass across a rough surface. The spring is compressed 0.05 m and released. How much work is done by friction in order to bring the mass to rest?

- 1) 0.063 J
- 2) 0.125 J
- 3) 1.25 J
- 4) 2.5 J
- 5) 100 J

8. A 3 kg object is dropped from a height of 4 m onto a spring. The maximum compression of the spring is 0.5 m. What is the spring constant?

- 1) 120 N/m
- 2) 240 N/m
- 3) 480 N/m
- 4) 600 N/m
- 5) 960 N/m

Answer Key
Gravitational Potential Energy MC Questions [Mar 28, 2011]

1. 3

2. 2

3. 2

4. 2

5. 4

6. 4

7. 1

8. 5

Name _____

Class _____

Date _____

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____