

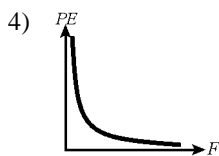
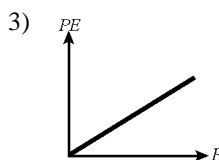
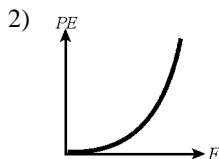
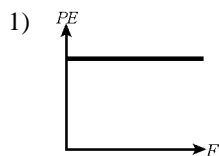
1. Five identical masses of mass M are suspended by a spring stretched a distance of L . If three of the masses are removed, what is the potential energy stored in the spring?

- 1) $\frac{4}{25}MgL$
- 2) $\frac{2}{5}MgL^2$
- 3) $\frac{5}{2}MgL$
- 4) $\frac{4}{25}MgL^2$
- 5) $5MgL$

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?

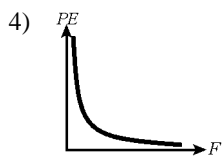
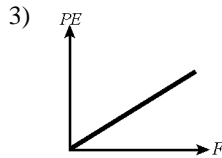
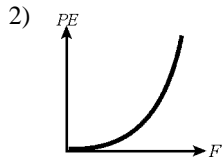
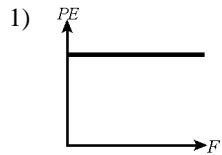
- 1) 0.25 J
- 2) 0.50 J
- 3) 1.0 J
- 4) 2.0 J
- 5) 4.0 J

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. _____
-