Name:

Springs and Hooke's Law

Block:

- 1. What force is required to compress a spring (spring constant of 240 N/m) by 5.0 cm?
- 2. A 4.0 kg mass is on a horizontal frictionless surface. It is pressed against a spring (spring constant 320 N/m) so that it is 40. cm from its equilibrium position as shown. What is its acceleration immediately after it is released?

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3. A 4.0 kg mass is on a horizontal surface with a coefficient of 0.55. It is pressed against a spring (spring constant 440 N/m) so that it is 12 cm from its equilibrium position as shown. What is its acceleration immediately after it is released?



4. A 50. g mass is hanging from a spring with a spring constant of 140 N/m. How far is the spring displaced from its equilibrium position?



- 5. A spring is 20 cm long when a load of 10 N is hanging from it, and 30 cm long when a load of 20 N is hanging from it. Determine its spring constant and equilibrium position.
- 6. The ends of two springs are attached and pressed towards each other so they are 20. cm apart as shown. One spring has a spring constant of 120 N/m and an equilibrium position of 16 cm. The other has a spring constant of 240 N/m and an equilibrium position of 12 cm. Determine how much each spring is compressed.

k =120 ₽ k,=240 ₩ 20. cm