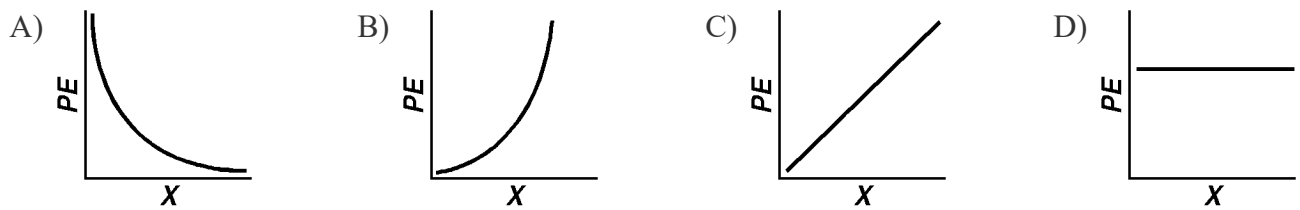


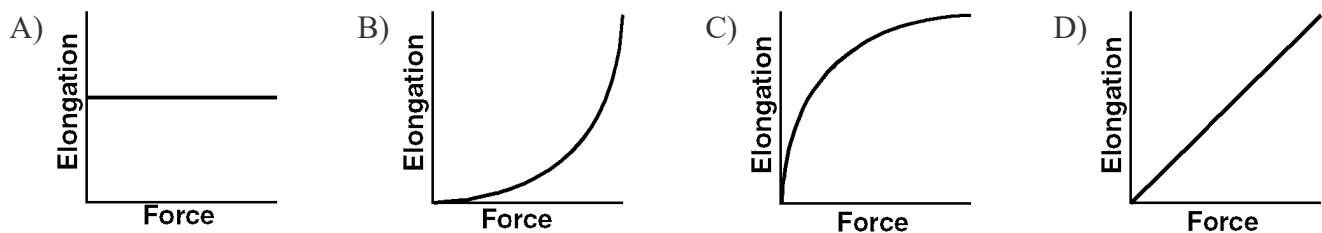
- 1) Which graph *best* represents the relationship between the potential energy stored in a spring (PE) and the change in the length of the spring from its equilibrium position (X)?



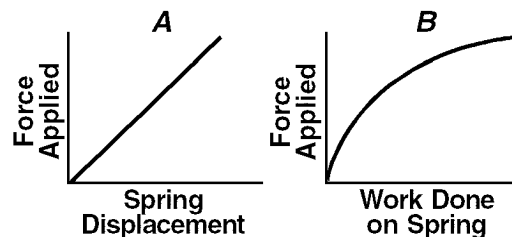
- 2) Spring A has a spring constant of 140 newtons per meter and spring B has a spring constant of 280 newtons per meter. Both springs are stretched the same distance. Compared to the potential energy stored in spring A , the potential energy stored in spring B is

A) half as great B) twice as great C) four times as great D) the same

- 3) Which graph *best* represents the relationship between the elongation of an ideal spring and the applied force?



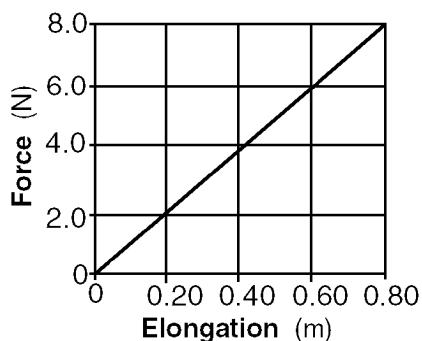
- 4) Graphs A and B below represent the results of applying an increasing force to stretch a spring which did not exceed its elastic limit.



The spring constant can be represented by the

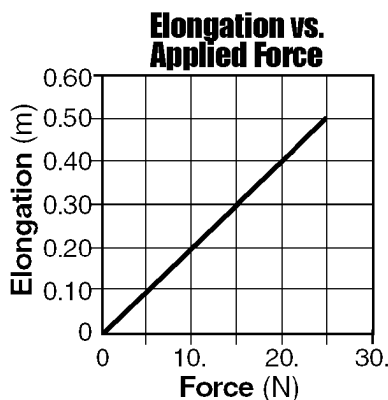
- A) slope of graph B C) slope of graph A
 B) reciprocal of the slope of graph A D) reciprocal of the slope of graph B

- 5) The graph below represents the relationship between the force applied to a spring and the elongation of the spring.



What is the spring constant?

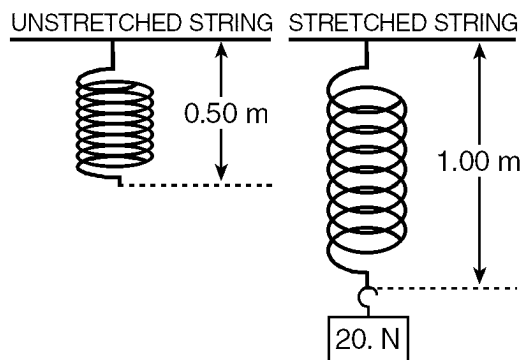
- A) 1. N/m B) 0.1 m/N C) 0.40 N•m D) 10. N/m
- 6) The graph below shows the relationship between the elongation of a spring and the force applied to the spring causing it to stretch.



What is the spring constant for this spring?

- A) 50. N/m B) 25 N/m C) 0.020 N/m D) 2.0 N/m
- 7) When a spring is stretched 0.200 meter from its equilibrium position, it possesses a potential energy of 10.0 joules. What is the spring constant for this spring?
- A) 100 N/m B) 125 N/m C) 500. N/m D) 250. N/m
- 8) What is the spring constant of a spring of negligible mass which gained 8 joules of potential energy as a result of being compressed 0.4 meter?
- A) 100 N/m B) 0.3 N/m C) 50 N/m D) 40 N/m

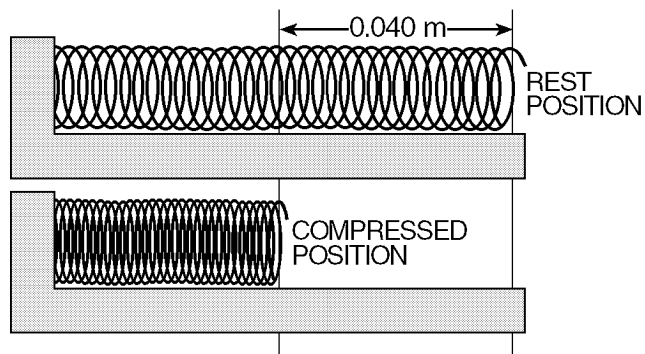
- 9) A 20.-newton weight is attached to a spring, causing it to stretch, as shown in the diagram below.



What is the spring constant of this spring?

- A) 20. N/m B) 40. N/m C) 0.25 N/m D) 0.050 N/m
- 10) The diagram below represents a block suspended from a spring.
-
- The diagram shows a rectangular block suspended from a ceiling. The ceiling is represented by a horizontal line with diagonal hatching above it. A spring is attached to the ceiling and extends downwards to a rectangular block.
- The spring is stretched 0.200 meter. If the spring constant is 200. newtons per meter, what is the weight of the block?
- A) 4.00 N B) 40.0 N C) 20.0 N D) 8.00 N
- 11) A spring has a spring constant of 120 newtons per meter. How much potential energy is stored in the spring as it is stretched 0.20 meter?
- A) 2.4 J B) 24 J C) 4.8 J D) 12 J
- 12) A force of 0.2 newton is needed to compress a spring a distance of 0.02 meter. The potential energy stored in this compressed spring is
- A) 2×10^{-5} J B) 8×10^{-5} J C) 4×10^{-5} J D) 2×10^{-3} J

- 13) The diagram below shows a spring compressed by a force of 6.0 newtons from its rest position to its compressed position.



Calculate the spring constant for this spring. [*Show all work.*]