

### Answer on Question #61615-Physics-Mechanics-Relativity

In an experiment involving the spiral spring,  $F$  is the restoring force and  $x$  the extension of the spring. The equation  $f = -kx$  gives the relationship between  $F$  and  $X$ . The graph of  $f/n$  against  $x/cm$

**A. passes through the origin**

B. has an intercept on the vertical axis

C. has an intercept on the horizontal axis

### Answer

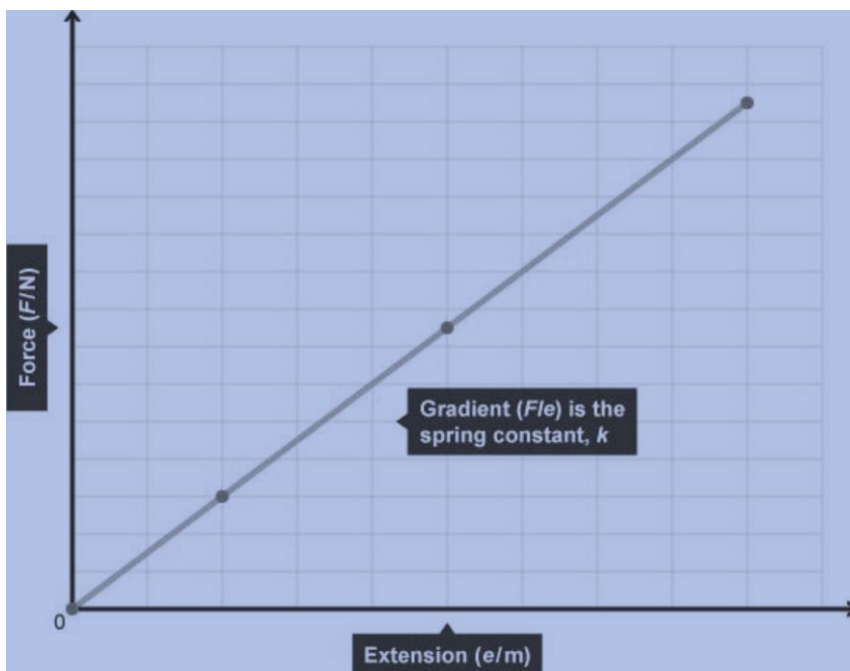
The extension of an elastic object is directly proportional to the force applied to it:

$$F = k \cdot e$$

$F$  is the force in newtons, N,

$k$  is the 'spring constant' in newtons per metre, N/m,

$e$  is the extension in metres, m.



The graph of force against extension produces a straight line that passes through the origin. The gradient of the line is the spring constant,  $k$ . The greater the value of  $k$ , the stiffer the spring.

**Answer: A. passes through the origin.**