

A block is oscillating at the end of a spring. It goes from its position of maximum spring extension to position of maximum spring compression in 0.4 sec. What is the time period and frequency of the oscillation?

Given:

Time to go from maximum spring extension to maximum spring compression:

$$t = 0.4 \text{ sec}$$

Determine: Time period T and frequency f of the oscillation.

The time to go from maximum spring extension back to maximum spring extension is the time period of the oscillation. Then $t = 0.4 \text{ sec}$ is half the time period.

$$T = 2t = 2 \times 0.4 = 0.8 \text{ sec}$$

Frequency f :

$$f = 1 / T = 1 / 0.8 = 1.25 \text{ Hz}$$