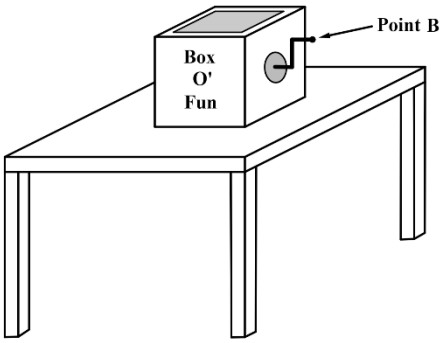


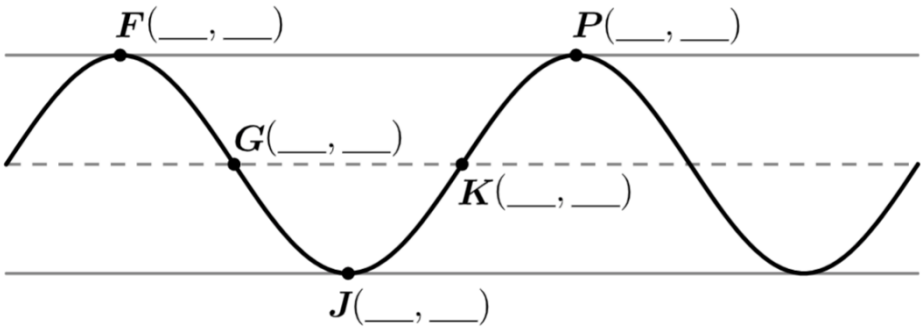
Note: Figure NOT drawn to scale

1. A "Box O' Fun" children's toy is set on a level table that is 36 inches above the level ground as seen in the figure. There is a crank on the side of the box that is rotated in a clockwise direction until a figurine pops out of the top of the box. The center of the crank is 9 inches above the top of the table. At time $t = 0$ seconds, the crank is at its highest point, and the distance between point B and the level ground is 50 inches. The crank completes one rotation every 4 seconds. As the crank turns, the distance between point B and the level ground periodically decreases and increases.

The periodic function h models the distance, in inches, between point B and the level ground as a function of time t in seconds.

(A) The graph of h and its dashed midline for two full cycles is shown. Five points, F, G, J, K, and P are labeled on the graph. No scale is indicated, and no axes are presented.

Determine possible coordinates $\left(t, h(t)\right)$ for the five points: F, G, J, K, and P.



(B) Refer to the graph of h in part (A). The t-coordinate of G is t_1, and the t-coordinate of J is t_2.

(j) On the interval (t_1, t_2), which of the following is true about h?

a. h is positive and increasing.

b. h is positive and decreasing.

c. h is negative and increasing.

d. h is negative and decreasing.

(ii) Describe how the rate of change of h is changing over the interval (t_1, t_2).