

f r q

$$b = \frac{2\pi}{0.2} = 10\pi$$

$$c = 0.05$$

$$d = 20$$

$$h(t) = 6 \sin(10\pi(t + 0.05)) + 20$$

Note: Based on horizontal shifts and reflections, there are other correct forms for  $h(t)$ .

### 16. Part C

Refer to the graph of  $h$  in part (A). The  $t$ -coordinate of  $K$  is  $t_1$ , and the  $t$ -coordinate of  $P$  is  $t_2$ .

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

1.  $h$  is positive and increasing.
2.  $h$  is positive and decreasing.
3.  $h$  is negative and increasing.
4.  $h$  is negative and decreasing.

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

### Part C

Select a point value to view scoring criteria, solutions, and/or examples to score the response.



0	1	2
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The student response includes both of these criteria.

- Correct function behavior in (i)
- Correct change in rate of change in (ii)

### Model Solution

(i) Choice a.

(ii) Because the graph of  $h$  is concave down on the interval  $(t_1, t_2)$ , the rate of change of  $h$  is decreasing on the interval  $(t_1, t_2)$ .