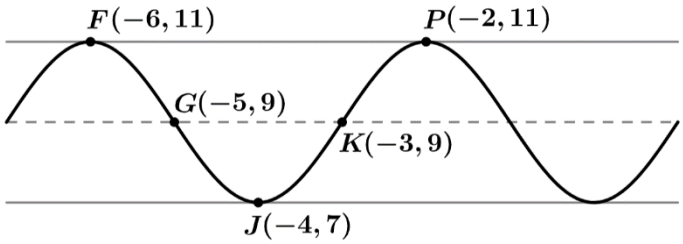
	Worksheet A: Topic 1.1	**Name**:
	AP Precalculus -- Change in Tandem	



1. The graph of $h(t)$ 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. The t-coordinate of G is t_1, and the t-coordinate of J is t_2.

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

a. h is positive and increasing.

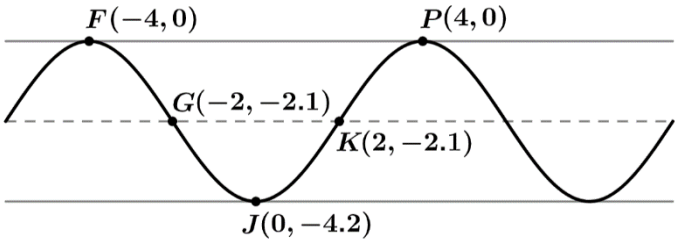
b. h is positive and decreasing.

c. h is negative and increasing.

d. h is negative and decreasing.

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

The rate of change of is increasing because h is concave up on the interval (t_1, t_2).



2. The graph of $h(t)$ 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. 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?

a. h is positive and increasing.

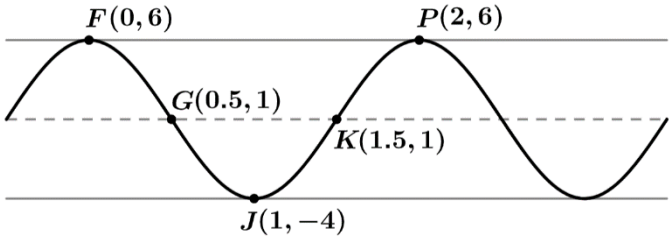
b. h is positive and decreasing.

c. h is negative and increasing.

d. h is negative and decreasing.

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

The rate of change of h is decreasing because h is concave down on the interval (t_1, t_2).



3. The graph of $h(t)$ 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. The t-coordinate of F is t_1, and the t-coordinate of G is t_2.

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

a. h is positive and increasing.

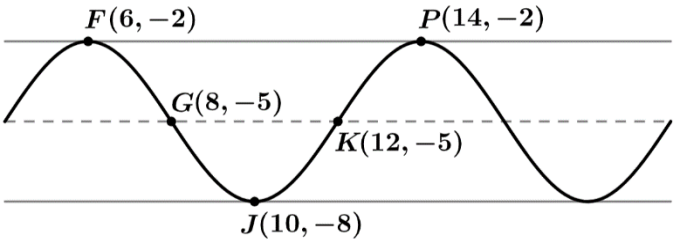
b. h is positive and decreasing.

c. h is negative and increasing.

d. h is negative and decreasing.

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

The rate of change of h is decreasing because h is concave down on the interval (t_1, t_2).



4. The graph of $h(t)$ 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. The t-coordinate of J is t_1, and the t-coordinate of K is t_2.

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

a. h is positive and increasing.

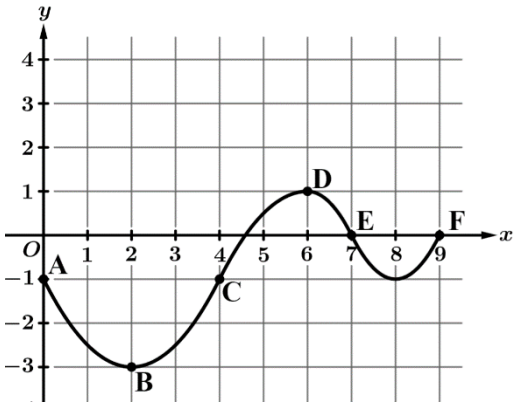
b. h is positive and decreasing.

c. h is negative and increasing.

d. h is negative and decreasing.

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

The rate of change of h is increasing because h is concave up on the interval (t_1, t_2).



Graph of f

The figure shows the graph of the function f for the interval $0 \le x \le 9$, as well as the six labeled points: A, B, C, D, E, and F. Use the graph of f for the following examples.

5. On which of the following intervals is f negative and increasing?

(A) the interval from A to B
(B) the interval from B to C
(C) the interval from C to D
(D) the interval from E to F

6. Which of the following statements about the rate of change of f is true?

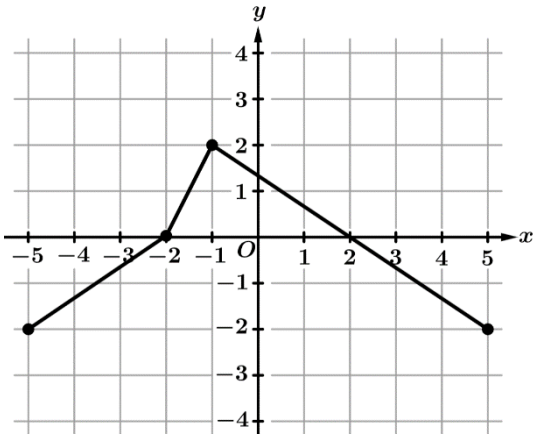
(A) The rate of change of f is negative on the interval from B to C.
(B) The rate of change of f is negative on the interval from C to D.
(C) The rate of change of f is negative on the interval from D to E.
(D) The rate of change of f is negative on the interval from E to F.

7. Which of the following statements about the rate of change of f is true?

(A) The rate of change of f is decreasing on the interval from A to B.
(B) The rate of change of f is decreasing on the interval from B to C.
(C) The rate of change of f is increasing on the interval from C to D.
(D) The rate of change of f is increasing on the interval from E to F.

8. On which of the following intervals is f decreasing and the graph of f concave up?

(A) the interval from A to B
(B) the interval from B to C
(C) the interval from C to D
(D) the interval from E to F

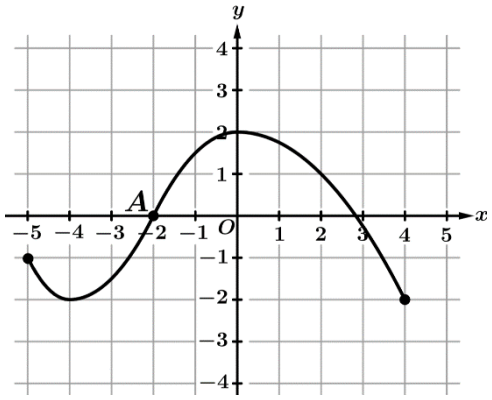


Graph of h

The figure shows the graph of the function h on the interval $-5 \le x \le 5$.

9. On what intervals is h increasing? h is increasing on the interval $[-5, -1]$.

10. On what intervals is h both positive and decreasing? h is positive and decreasing on the interval $[-1,2]$.



Graph of g

The figure shows the graph of the function g on the interval $-5 \le x \le 4$. Point A is located at $(-2, 0)$ and is the only point where the graph of g changes concavity.

11. On what intervals is the rate of change of g negative? The rate of change of g negative on $[-5, -4]$ and $[0,4]$

12. On what intervals is the rate of change of g positive and decreasing? The rate of change of g positive and decreasing on $[-2,0]$.