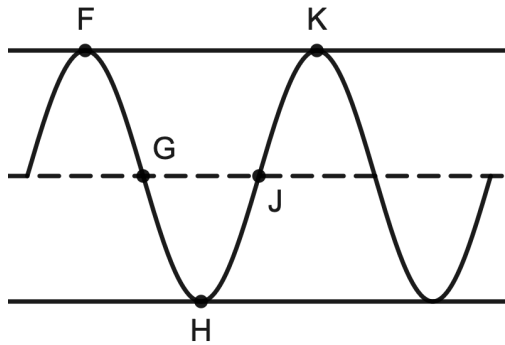


FRQ #3: Modeling a Periodic Context

What can I expect?

- No calculator
- Verbal description of a sinusoidal function in a real-world context
- Most scripted of all the FRQs

(A) Determine coordinates of 5 labeled points.



(B) Solve for parameters of sinusoidal function.

$$h(t) = a \sin(b(t + c)) + d$$

or

$$h(t) = a \cos(b(t + c)) + d$$

- (C) i) **Multiple choice:** Given an interval
- h is positive and increasing.
 - h is positive and decreasing.
 - h is negative and increasing.
 - h is negative and decreasing.

ii) On that given interval, describe how the rate of change of h is changing.

What should I know and be able to do?

- Extract info about _____, _____, _____ and _____ from a context.

*Look for information about:

- _____ value
- _____ value
- Time it takes to complete one _____

- Understand how graph features are related to values of parameters.

$$|a| = \quad \quad \quad d =$$

$$\frac{2\pi}{b} = \quad \quad \quad c =$$

- Meaning of positive/negative values and increasing/decreasing behavior of a function
- Rate of change is changing \Rightarrow _____
 - Concave up \rightarrow
 - Concave down \rightarrow

AP Exam Tips: