

f r q

The student response includes both of these criteria.

- t -coordinates
- $h(t)$ -coordinates

Model Solution

F has coordinates $(2, 0.5)$.

G has coordinates $(3, 0)$.

J has coordinates $(4, -0.5)$.

K has coordinates $(5, 0)$.

P has coordinates $(6, 0.5)$.

Note: t -coordinates will vary. A correct set of coordinates for one full cycle of h as pictured is acceptable.

Part B

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.

- Values for a and d (vertical transformations)
- Values for b and c (horizontal transformations)

Model Solution

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

$$a = \frac{1}{2}$$

$$\frac{2\pi}{b} = 4, \text{ so } b = \frac{2\pi}{4} = \frac{\pi}{2}$$

$$c = 2 \text{ or } c = -2$$

$$d = 0$$

$$h(t) = \frac{1}{2} \cos\left(\frac{\pi}{2}(t + 2)\right) \text{ or } h(t) = \frac{1}{2} \cos\left(\frac{\pi}{2}(t - 2)\right)$$

OR

$$a = -\frac{1}{2}$$