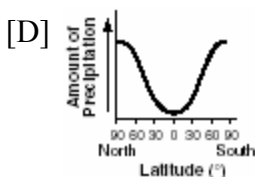
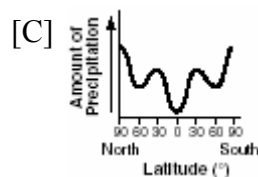
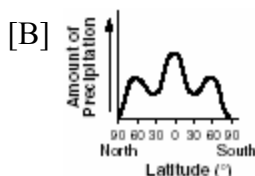
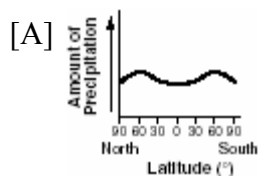


NAME: \_\_\_\_\_

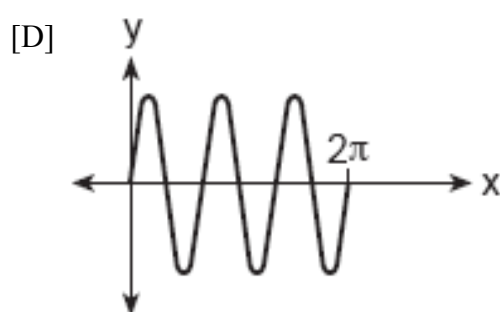
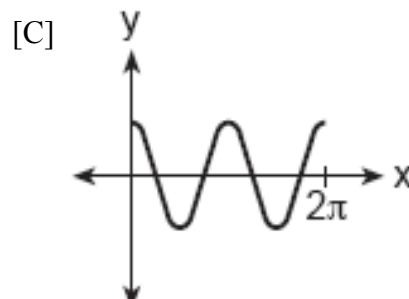
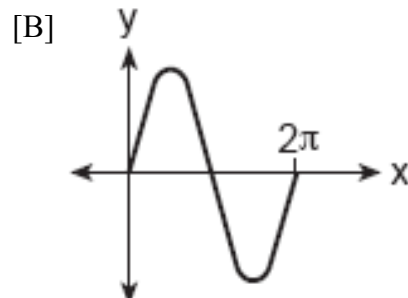
1. 080503b, P.I. A2.A.70

The graphs below show the average annual precipitation received at different latitudes on Earth. Which graph is a translated cosine curve?



2. 080815b, P.I. A2.A.70

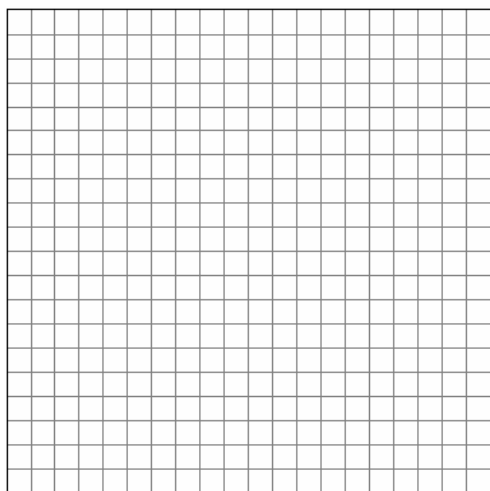
Which graph represents a sound wave that follows a curve whose period is  $\pi$  and that is in the form  $y = a \sin bx$ ?



NAME: \_\_\_\_\_

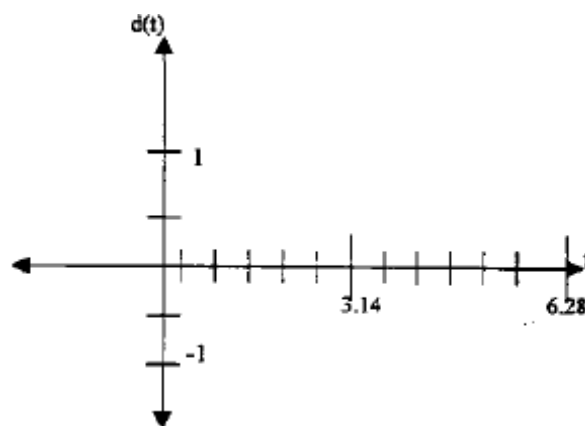
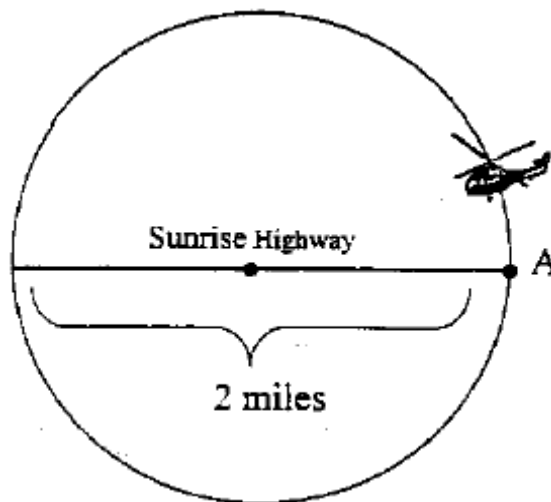
3. 060832b, P.I. A2.A.70

A radio wave has an amplitude of 3 and a wavelength (period) of  $\pi$  meters. On the accompanying grid, using the interval 0 to  $2\pi$ , draw a possible sine curve for this wave that passes through the origin.



4. fall9931b, P.I. A2.A.70

A helicopter, starting at point  $A$  on Sunrise Highway, circles a 2-mile section of the highway in a counterclockwise direction. If the helicopter is traveling at a constant speed and it takes approximately 6.28 minutes to make one complete revolution to return to point  $A$ , sketch a possible graph of distance ( $d$ ) from the helicopter to the highway, versus time ( $t$ ) (independent variable). If the helicopter is north of the highway, distance ( $d$ ) is positive; if the helicopter is south of the highway, distance ( $d$ ) is negative. (Disregard the height of the helicopter.) State the equation of this graph.



[1] D \_\_\_\_\_

[2] A \_\_\_\_\_

[4] The graph of  $y = 3\sin 2x$  or the graph of  $y = -3\sin 2x$  is drawn.

[3] Appropriate work is shown, but one graphing error is made, such as not drawing the graph over the entire interval.

[2] Appropriate work is shown, but two or more graphing errors are made.

or [2] Appropriate work is shown, but one conceptual error is made, such as graphing  $y = \sin 2x$  or  $y = 3\sin x$ .

[1] Appropriate work is shown, but one conceptual error and one graphing error are made.

or [1] The equation  $y = 3\sin 2x$  or  $y = -3\sin 2x$  is written, but no graph is drawn.

[0] A zero response is completely incorrect, irrelevant, or incoherent or is a correct response that was obtained by an obviously

[3] incorrect procedure.

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[4] Correct graph of  $d(t) = \sin t$  over the specified interval and a correct equation written.

[3] Correct graph with an incorrect equation, such as  $y = \sin x$ , or graph contains minor flaws.

[2] Incorrect trig graph with an appropriate equation such as  $y = -\sin x$ .

or [2] Correct trig graph with incorrect equation or no equation, such as  $d(t) = \cos t$ .

[1] Identifies sine function correctly, but no work and no graph are shown.

or [1] Recognizes the graph as a form of the sine function, such as  $d(t) = -\sin t$  and graph contains minor flaws.

[0] A zero response is completely incorrect, irrelevant, or incoherent; or is a correct response that was obtained by an obviously

[4] incorrect procedure.

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