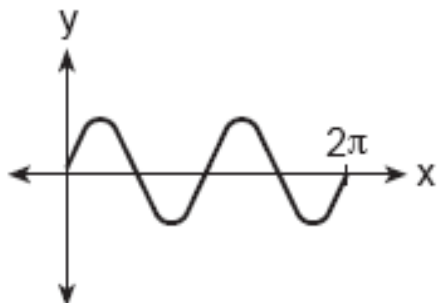


A2.A.70: Sketch and recognize one cycle of a function of the form $y = A \sin Bx$ or $y = A \cos Bx$

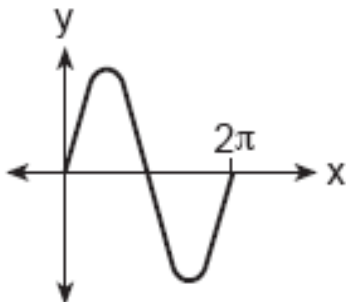
1. 080815b, P.I. A2.A.70

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

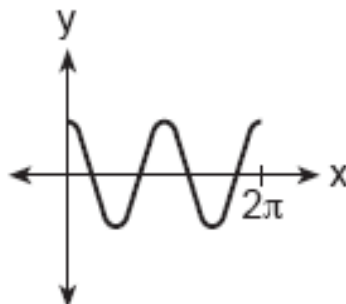
[A]



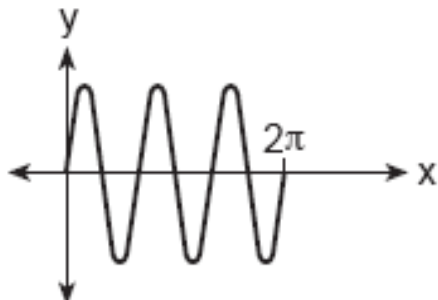
[B]



[C]

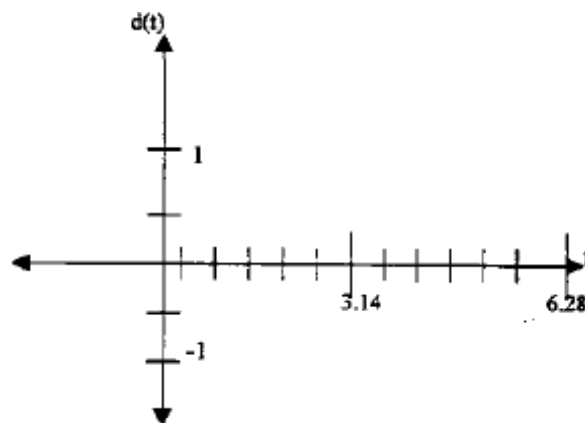
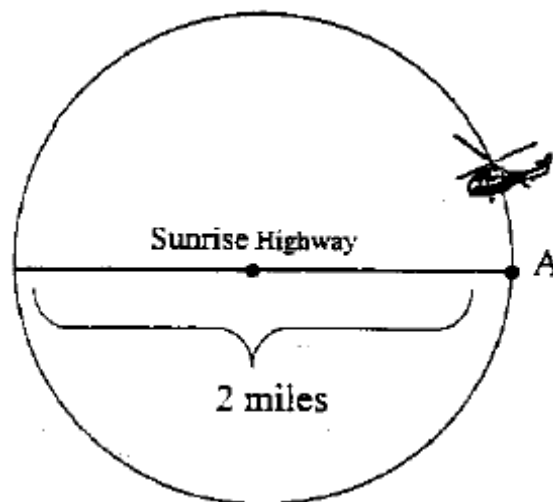


[D]



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

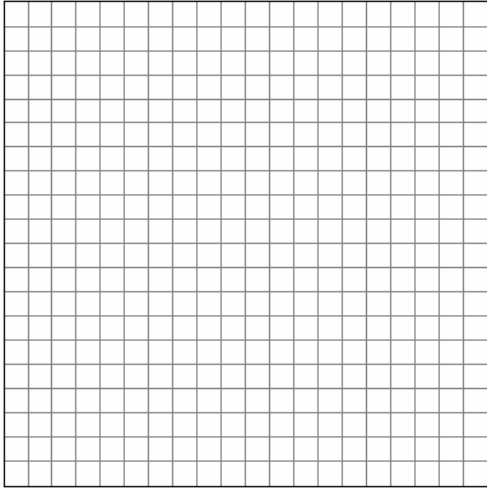
A helicopter, starting at point A on Sunrise Highway, circles a 2-mile section of the highway in a counterclockwise direction. If the helicopter is traveling at a constant speed and it takes approximately 6.28 minutes to make one complete revolution to return to point A , sketch a possible graph of distance (dependent variable) from the helicopter to the highway, versus time (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.



NAME: _____

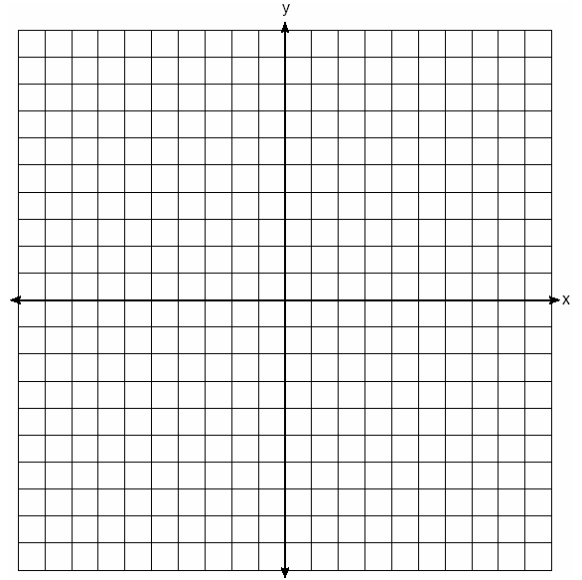
3. 060832b, P.I. A2.A.70

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



4. 080532b, P.I. A2.A.70

On the accompanying set of axes, graph the equations $y = 4\cos x$ and $y = 2$ in the domain $-\pi \leq x \leq \pi$. Express, in terms of π , the interval for which $4\cos x \geq 2$.



A2.A.70: Sketch and recognize one cycle of a function of the form $y = A \sin Bx$ or $y = A \cos Bx$

[1] A

[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

[2] incorrect procedure.

[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.

[4] Both equations are graphed correctly over the specified domain and the interval

$-\frac{\pi}{3} \leq x \leq \frac{\pi}{3}$ is identified.

[3] Appropriate work is shown, but one computational or graphing error is made.
or [3] Both equations are graphed correctly over the specified domain, but the interval is not identified or is written as $-1.0472 \leq x \leq$

1.0472 or $-60^\circ \leq x \leq 60^\circ$ or $-\frac{\pi}{3} < x < \frac{\pi}{3}$.

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

or [2] Appropriate work is shown, but one conceptual error is made, such as graphing $y = 4 \sin x$.

or [2] The equation $y = 4 \cos x$ is graphed correctly over the specified domain, but no further correct work is shown.

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

or [1] $-\frac{\pi}{3} \leq x \leq \frac{\pi}{3}$, but no work is shown and no graphs are drawn.

[0] The equation $y = 2$ is graphed correctly, but no further correct work is shown.

or [0] $-1.0472 < x < 1.0472$ or $-60^\circ < x < 60^\circ$

or $-\frac{\pi}{3} < x < \frac{\pi}{3}$, and no work is shown.

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

[4] obviously incorrect procedure.