

1. (1 pt)

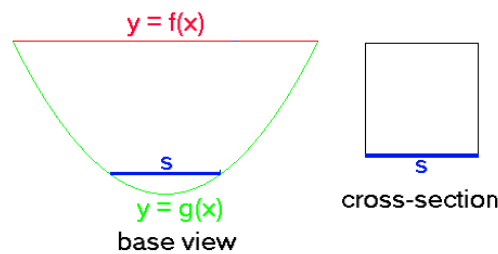
Consider the blue vertical line shown above (click on graph for better view) connecting the graphs $y = g(x) = \sin(2x)$ and $y = f(x) = \cos(1x)$.

Referring to this blue line, match the statements below about rotating this line with the corresponding statements about the result obtained.

- ___1. The result of rotating the line about the x -axis is
 - ___2. The result of rotating the line about the y -axis is
 - ___3. The result of rotating the line about the line $y = 1$ is
 - ___4. The result of rotating the line about the line $x = -2$ is
 - ___5. The result of rotating the line about the line $x = \pi$ is
 - ___6. The result of rotating the line about the line $y = -2$ is
 - ___7. The result of rotating the line about the line $y = \pi$
 - ___8. The result of rotating the line about the line $y = -\pi$
- A. an annulus with inner radius $\sin(2x)$ and outer radius $\cos(1x)$
 - B. a cylinder of radius $x + 2$ and height $\cos(1x) - \sin(2x)$
 - C. an annulus with inner radius $\pi + \sin(2x)$ and outer radius $\pi + \cos(1x)$
 - D. an annulus with inner radius $1 - \cos(1x)$ and outer radius $1 - \sin(2x)$ is

- E. an annulus with inner radius $2 + \sin(2x)$ and outer radius $2 + \cos(1x)$
- F. an annulus with inner radius $\pi - \cos(1x)$ and outer radius $\pi - \sin(2x)$
- G. a cylinder of radius $\pi - x$ and height $\cos(1x) - \sin(2x)$
- H. a cylinder of radius x and height $\cos(1x) - \sin(2x)$

2. (1 pt)



The base of a certain solid is the area bounded above by the graph of $y = f(x) = 4$ and below by the graph of $y = g(x) = 9x^2$. Cross-sections perpendicular to the y -axis are squares. (See picture above, click for a better view.)

Use the formula

$$V = \int_a^b A(y) dy$$

to find the volume of the formula.

Note: You can get full credit for this problem by just entering the final answer (to the last question) correctly. The initial questions are meant as hints towards the final answer and also allow you the opportunity to get partial credit.

The lower limit of integration is $a =$ _____

The upper limit of integration is $b =$ _____

The side s of the square cross-section is the following function of y : _____

$A(y) =$ _____

Thus the volume of the solid is $V =$ _____

3. (1 pt) Find the volume of the solid obtained by rotating the region bounded by $y = 6x^2$, $x = 1$, and $y = 0$, about the x -axis. $V =$ _____