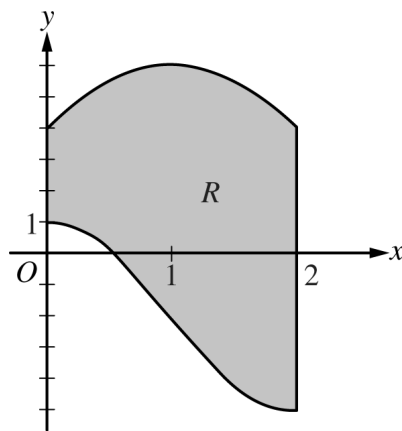




5. Let R be the region enclosed by the graphs of $g(x) = -2 + 3 \cos\left(\frac{\pi}{2}x\right)$ and $h(x) = 6 - 2(x - 1)^2$, the y -axis, and the vertical line $x = 2$, as shown in the figure above.

(a) Find the area of R .

(b) Region R is the base of a solid. For the solid, at each x the cross section perpendicular to the x -axis has

area $A(x) = \frac{1}{x+3}$. Find the volume of the solid.

(c) Write, but do not evaluate, an integral expression that gives the volume of the solid generated when R is rotated about the horizontal line $y = 6$.
