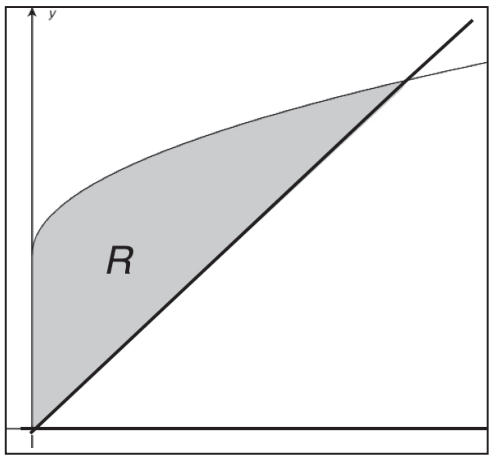
Example B3: Let R be the shaded region bounded by the graphs of $y = \sqrt{x} + 2, y = x$, and the y-axis as shown in the figure to the right.



a) Find the area of R. (2)

b) Find the volume of the solid when R is revolved around the x-axis. (2)

c) Write, but do not evaluate, an expression that represents the volume of the solid when R is revolved around the y-axis. (3)

d) The region R is the base of a solid. For this solid, the cross sections perpendicular to the x-axis are semi-circles. Write, but do not evaluate an expression that represents the volume of this solid. (2)
