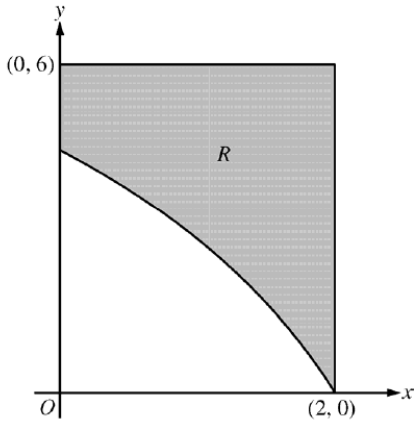
AP Calculus

Chapter 8 Test Review

2. [Calculator] In the figure at the right, R is the shaded region in the first quadrant bounded by the graph of $y = 4\ln(3 - x)$, the horizontal line $y = 6$, and the vertical line $x = 2$.



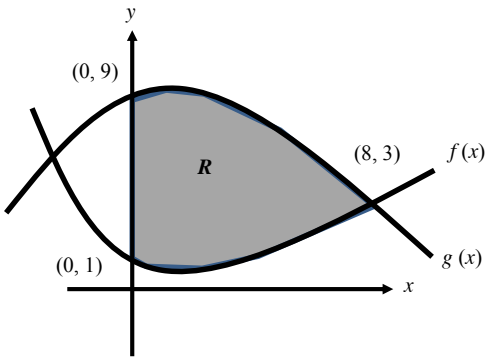
a) Find the volume of the solid generated when R is revolved about the line $y = 6$.

b) Find the volume of the solid generated when R is revolved about the line $x = 3$.

c) Find the volume of the solid generated when R is revolved about the line $x = -5$.

d) Find the volume of the solid generated when R is revolved about the line $y = -3$.

3. Each of the questions below refer to the region R as shown in the figure below. Simply set up the integral expression that would be used to answer each question.



a) Find the area of R.

b) Find the volume of the solid whose base is R and where the cross sections perpendicular to the x-axis make the following shape:

i) rectangles whose height equal 3 times its base.

ii) semicircles

c) Find the volume of the solid formed by revolving the region R around each given axis.

i) x –axis

ii) y-axis

iii) the line $x = 10$

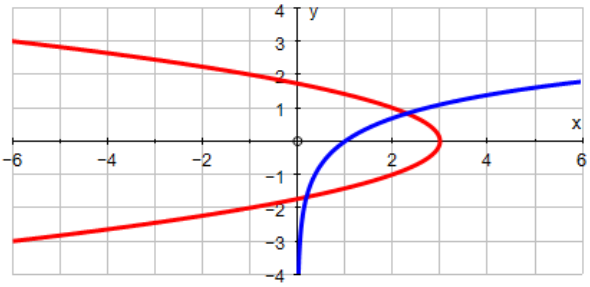
iv) the line $y = 10$

v) the line $x = -2$

vi) the line $y = -2$

4. Each of the questions below refer to the region R, the region enclosed by the graphs of $y = \ln(x)$ and $x = 3 - y^2$. Set up an integral expression to answer each question, then use your calculator to evaluate.

a) Find the area of R.



b) Find the volume of the solid that uses R as a base and has cross sections perpendicular to the y-axis that are …

i) squares

ii) equilateral triangles

c) Find the volume of the solid formed by revolving the region R around each given axis.

i) the line $x = 5$

ii) the line $y = 5$

iii) the line $x = -3$

iv) the line $y = -3$