# Spring 2019 Math 152

**Week in Review 2**

*courtesy: Amy Austin*

(covering sections 6.2)

## Section 6.2

1. Find the volume of the solid obtained by revolving the region bounded by $y = \frac{1}{x}$, $y = 0$, $x = 1$, $x = 2$ about the $x$-axis.

2. Find the volume of the solid obtained by revolving the region bounded by $y = 3x^5$, $y = 1$ and $x = 0$ about the $y$-axis.

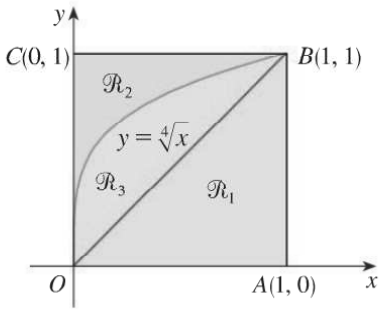
3. Find the volume of the solid obtained by revolving the region bounded by $y = x^2$ and $y = 4x$ about the $x$-axis, then the $y$ axis.

4. Find the volume of the solid obtained by revolving the region bounded by $y = x^2$, $y = 4$, about the line $y = 4$.

5. Find the volume of the solid obtained by revolving the region bounded by $x = y^2$, $x = 1$, about the line $x = 1$.

6. Find the volume of the solid obtained by revolving the region bounded by $y = x$, $y = \sqrt{x}$, about the line $x = -1$.

7. Refer to the figure below to set up but do not evaluate an integral that finds the volume generated by rotating the given region about the specified line.




   (a) $R_2$ about $BC$

   (b) $R_3$ about $AB$

   (c) $R_2$ about $AB$

8. Find the volume of $S$ where the base of $S$ is the region bounded by $y = x^2$ and $y = \sqrt{x}$. The cross sections perpendicular to the $x$-axis are squares.

9. Find the volume of $S$ where the base of $S$ is the region bounded by $y = x^2$ and $y = \sqrt{x}$. The cross sections perpendicular to the $y$-axis are squares.

10. Find the volume of the solid $S$ where the base of $S$ is the region bounded by $y = x^2$ and $y = 4$. The cross-sections perpendicular to the $y$ axis are equilateral triangles.

11. Find the volume of the solid $S$ where the base of $S$ is the triangular region with vertices $(0, 0)$, $(2, 0)$ and $(0, 4)$. Cross-sections perpendicular to the $x$ axis are semi-circles.

12. Find the volume of the solid $S$ where the base of $S$ is the ellipse $\frac{x^2}{4} + \frac{y^2}{16} = 1$. Cross sections perpendicular to the $x$-axis are isosceles triangles where the base and height are equal.