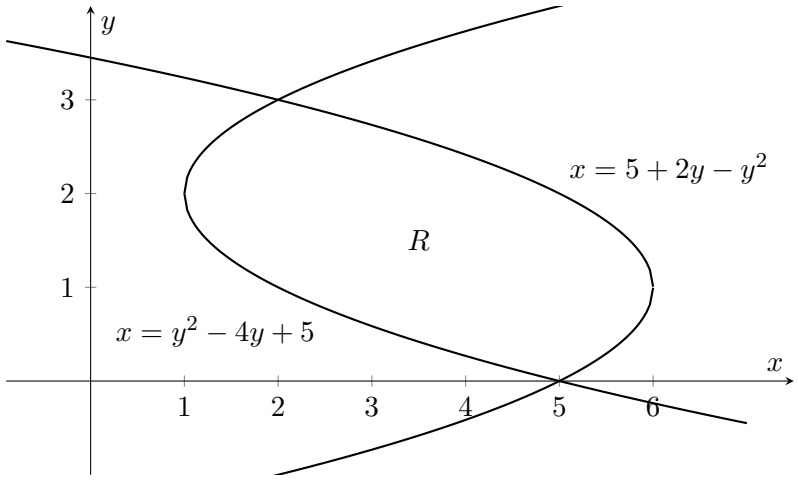
6. [15 points] The curves $x = y^2 - 4y + 5$ and $x = 5 + 2y - y^2$ intersect at the points $(2, 3)$ and $(5, 0)$, as seen in the diagram below. Consider the region, R, bounded by the two curves.



a. [5 points] Find an expression involving one or more integrals for the volume of the solid formed by rotating the region R around the line $x = 0$ (i.e. the y-axis). Do not evaluate your integral(s).

Answer: _____

b. [5 points] Find an expression involving one or more integrals for the volume of the solid formed by rotating the region R around the line $y = 4$. Do not evaluate your integral(s).

Answer: _____

c. [5 points] Find an expression involving one or more integrals for the volume of the solid which has the region R as its base, and which has square cross-sections perpendicular to the y-axis. Do not evaluate your integral(s).

Answer: _____