

Quiz 9 Key — MA16020 — February 12, 2018

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Min	Mean	Max
2	7.1	10

For each of the problems below, write (but do not evaluate) an integral to find the volume of the solid generated by rotating the region bounded by the given curves about the given axis.

1. (2 points) The curves $y = 3x + 4$, $x = 1$, $x = 5$, and $y = 0$; rotated about the x -axis.

$$\int_1^5 \pi(3x + 4)^2 dx$$

2. (2 points) The curves $y = 0$, $x = 0$, $y = \ln x$, and $y = 4$; rotated about the y -axis.

$$\int_0^4 \pi e^{2y} dy$$

3. (3 points) The curves $y = -x^2 + 5x - 4$ and $y = 0$; rotated about the x -axis.

$$\int_1^4 \pi(-x^2 + 5x - 4)^2 dx$$

4. (3 points) The curves $(y - 2)^2 + x^2 = 9$ and $x = 0$ (the region in the first quadrant); rotated about the y -axis.

$$\int_0^5 \pi(9 - (y - 2)^2) dy$$