

Quiz 10 Key — MA16020 — February 16, 2018

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Min	Mean	Max
1	4.9	9

1. (6 points) Let R be the region enclosed by $y = \frac{3}{2}\ln(x)$, $x = 4$, and the x -axis. For each of the problems below, R is rotated about the given line, generating an unknown volume. For each problem, state whether the disk method or the washer method should be used to find the volume, and state whether the integral will be with respect to y or with respect to x . You do not need to set up the integral, and you do not need to find the volume.

- (a) The x -axis. (d) The line $x = 4$.
(b) The y -axis. (e) The line $y = -3$.
(c) The line $x = 1$. (f) The line $y = 10$.

(a) dx , disk.	(d) dy , disk.
(b) dy , washer.	(e) dx , washer.
(c) dy , washer.	(f) dx , washer.

2. (4 points) Let R be the region enclosed by $y = x^2$, $x = 1$, $x = 2$, and the x -axis. Find the volume of the solid generated by rotating R about the y -axis.

$\int_0^1 \pi 2^2 - \pi 1^2 dy + \int_1^4 \pi 2^2 - \pi \sqrt{y}^2 dy = \frac{15\pi}{2}$
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