

Washer Problems [section 6.2 pg 428-429 # 1-38]

#	region boundary	axis of rev				thickness		radii		definite integral
		x-axis	y-axis	x=?	y=?	dx	dy	outer	inner	$\pi \int (\text{outer radius}^2 - \text{inner radius}^2) * \text{thickness}$
1	$y = -x + 1, x = 0, y = 0$	■								
2	$y = 4 - x^2, x = 0, y = 0$	■								
3	$y = \sqrt{x}, x = 1, x = 4, y = 0$	■								
4	$y = \sqrt{9 - x^2}, x = 0, y = 0$	■								
5	$y = x^2, y = x^3$	■								
6	$y = 2, y = 4 - \frac{x^2}{4}$	■								
7	$y = x^2, x = 0, y = 4$		■							
8	$y = \sqrt{16 - x^2}, x = 0, y = 0$		■							
9	$y = x^{2/3}, x = 0, y = 1$		■							
10	$x = -y^2 + 4y, y = 1, x = 0$		■							
11a	$y = \sqrt{x}, y = 0, x = 4$	■								
11b	same as 11a		■							

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		x-axis	y-axis	x=?	y=?	dx	dy	outer	inner	$\pi \int_{-}^{+} (\text{outer radius}^2 - \text{inner radius}^2) \times \text{thickness}$
11c	$y = \sqrt{x}, y = 0, x = 4$			4						
11d	same as 11c			6						
<sup>b</sup> <del>12a</del>	$y = 2x^2, y = 9, x = 2$	■								
<sup>a</sup> <del>12b</del>	same as 12b		■							
12c	same as 12b				8					
12d	same as 12b			2						
13a	$y = x^2, y = 4x - x^2$	■								
13b	same as 13a				6					
14a	$y = 6 - 2x - x^2, y = x + 6$	■								
14b	same as 14a				3					
15	$y = x, y = 3, x = 0$				4					
16	$y = \frac{1}{2}x^3, y = 4, x = 0$				4					