

From the book, do:

Section 6.1

1, 3, 7, 9, 11, 17, 23, 27

Section 6.2:

3, 7, 9, 11, 15, 17, 47, 49

Section 6.3

3, 5, 9, 13, 15, 17, 19, 41, 45, 47

- (1) Consider the region between

$$y = x^2$$

$$y = x + 2$$

- (a) Write an integral or integrals with respect to x representing the area of the above region. You do not need to evaluate the integral.
- (b) Write an integral or integrals with respect to y representing the area of the above region. You do not need to evaluate the integral.

- (2) Consider the region between

$$y = 3x$$

$$y = \frac{1}{2}x$$

$$x = 6$$

- (a) Write an integral or integrals with respect to x representing the area of the above region. You do not need to evaluate the integral.
- (b) Write an integral or integrals with respect to y representing the area of the above region. You do not need to evaluate the integral.

- (3) Consider the region given by

$$x^2 \leq y \leq 3x$$

- (a) Write an integral (or sum of integrals) with respect to x representing the area of the above region. You do not need to evaluate the integral.
- (b) Write an integral (or sum of integrals) with respect to y representing the area of the above region. You do not need to evaluate the integral.
- (c) Suppose the above region is rotated about the x -axis. Write an integral (or sum of integrals) with respect to x representing the volume of the resulting solid of revolution. Do not evaluate the resulting integral.
- (d) Suppose the above region is rotated about the x -axis. Write an integral (or sum of integrals) with respect to y representing the volume of the resulting solid of revolution. Do not evaluate the resulting integral.
- (e) Suppose the above region is rotated about the line $y = -3$. Write an integral (or sum of integrals) with respect to x representing the volume of the resulting solid of revolution. Do not evaluate the resulting integral.
- (f) Suppose the above region is rotated about the line $y = -3$. Write an integral (or sum of integrals) with respect to y representing the volume of the resulting solid of revolution. Do not evaluate the resulting integral.
- (g) Suppose the above region is rotated about the y -axis. Write an integral (or sum of integrals) with respect to x representing the volume of the resulting solid of revolution. Do not evaluate the resulting integral.
- (h) Suppose the above region is rotated about the y -axis. Write an integral (or sum of integrals) with respect to y representing the volume of the resulting solid of revolution. Do not evaluate the resulting integral.

- (i) Suppose the above region is rotated about the line $x = -3$. Write an integral (or sum of integrals) with respect to x representing the volume of the resulting solid of revolution. Do not evaluate the resulting integral.
 - (j) Suppose the above region is rotated about the line $x = -3$. Write an integral (or sum of integrals) with respect to y representing the volume of the resulting solid of revolution. Do not evaluate the resulting integral.
- (4) Consider the triangular region given by

$$\begin{aligned}y &\leq 3x \\x &\leq y \\x + y &\leq 8\end{aligned}$$

- (a) Write an integral (or sum of integrals) with respect to x representing the area of the above region. You do not need to evaluate the integral.
- (b) Write an integral (or sum of integrals) with respect to y representing the area of the above region. You do not need to evaluate the integral.
- (c) Suppose the above region is rotated about the x -axis. Write an integral (or sum of integrals) with respect to x representing the volume of the resulting solid of revolution. Do not evaluate the resulting integral.
- (d) Suppose the above region is rotated about the x -axis. Write an integral (or sum of integrals) with respect to y representing the volume of the resulting solid of revolution. Do not evaluate the resulting integral.
- (e) Suppose the above region is rotated about the line $y = -3$. Write an integral (or sum of integrals) with respect to x representing the volume of the resulting solid of revolution. Do not evaluate the resulting integral.
- (f) Suppose the above region is rotated about the line $y = -3$. Write an integral (or sum of integrals) with respect to y representing the volume of the resulting solid of revolution. Do not evaluate the resulting integral.