Lesson 6-2 Volume: Slicing , Disks and Washers

1- Find the volume of the solid with cross-section area A(x).

$$A(x) = x + 2 \ , \qquad -1 \le x \le 3$$

A- 144
B- 12
C- 12π
D- 144π

2- Find the volume of the solid with cross-section area A(x).

$$A(x) = 10e^{0.01x} \ , \qquad 0 \le x \le 10$$

A- 100
B- 105.2
C- 29875
D- 1857

3- Find the volume of the solid with cross-section area A(x).

$$A(x) = \pi(4 - x)^2 \ , \qquad 0 \le x \le 2$$

A- 18.67
B- 18.76
C- 58.64
D- 58.46

4- A church steeple is 30 feet tall with square cross sections. The square at the base has side 3 feet, the square at the top has side 6 inches and the side varies linearly in between compute the volume.

A- 117.5 ft^3
B- 215 ft^3
C- 107.5 ft^3
D- 207.5 ft^3

5- A house attic has rectangular cross sections parallel to the ground and triangular cross sections perpendicular to the ground. The rectangle is 30 feet by 60 feet at the bottom of the attic and the triangles have base 30 feet and height 10 feet. Compute the volume of the attic.

A- 9000
B- 9099
C- 10000
D- 1800

6- The outline of a dome is given by $y = 60 - \frac{x^2}{60}$ for $-60 \leq x \leq 60$ (units of feet), with circular cross-sections perpendicular to the y-axis. Find its volume.

A- $339292.0066\ ft^3$
B- $108000\ ft^3$
C- $10800\pi\ ft^3$
D- $18000\pi\ ft^3$

7- Estimate the volume from the cross-sectional areas.

$x\ (ft)$	0	0.5	1	1.5	2
$A(x)\ (ft^2)$	1	1.2	1.4	1.3	1.2

A- $25\ ft^3$
B- $15\ ft^3$
C- $3\ ft^3$
D- $2.5\ ft^3$

8- **Compute the volume of the solid formed by revolving the given region about the given line.**
Region bounded by y=2-x, y=0 and x=0 about (a)the x-axis; (b) y=3

A- (a)9.4 (b)29.3
B- (a)8 (b)29.3
C- (a)8.4 (b)29
D- (a)8.4 (b)29.3

9- **Compute the volume of the solid formed by revolving the given region about the given line.**
Region bounded by $y = \sqrt{x}$, y=2 and x=0 about (a) the y-axis; (b) x=4

A- (a)20.11 (b)46.92
B- (a)32 (b)224
C- (a)20 (b)46.92
D- (a)21.15 (b)36.92

10- **Compute the volume of the solid formed by revolving the given region about the given line.**
Region bounded by $y = e^x$, x=0 and x=2 about (a) the y-axis; (b) y=-2

A- (a)52.71 (b)$\pi(\frac{e^4}{2} + 4e^2 - 9)$
B- (a)52.71 (b)$\pi(\frac{e^4}{2} + 4e^2 - \frac{9}{2})$
C- (a)52.71 (b)$\pi(\frac{e^4}{2} + e^2 - \frac{9}{2})$
D- (a)52.71 (b)$\pi(\frac{e^4}{2} + 6e^2 - \frac{9}{2})$

11- **Compute the volume of the solid formed by revolving the given region about the given line.**
Region bounded by $y = sec\ x$, y=0 , $x = \frac{-\pi}{4}$ and $x = \frac{\pi}{4}$ about (a) y=2; (b) the x-axis

A- (a)15.868 (b)3π
B- (a)15.868 (b)6.28
C- (a)15.868 (b)π
D- (a)15 (b)π