

Section 7.1

1. Find the area bounded by $y = \cos x$, $y = 0$,
 $x = 0$, $x = \frac{\pi}{3}$.

2. Find the area bounded by $y = \sin x$, $y = 0$,
 $x = \frac{\pi}{4}$, $x = \frac{3\pi}{2}$.

3. Find the area bounded by $y = x^2$ and $y = 2x - x^2$.

4. Find the area bounded by $y = x - 1$ and $y^2 = 2x + 6$.

5. Find the area bounded by $y = \sin x$, $y = \cos x$,
 $x = -\frac{\pi}{2}$ and $x = \frac{\pi}{2}$.

6. Find the area bounded by $y = |2 - x^2|$, $y = 0$,
 $x = 0$, $x = 2$.

7. Find the area of the region bounded by the parabola $y = x^2$, the tangent line to the parabola at the point $(1, 1)$ and the x -axis.

Section 7.2

8. Find the volume of the solid obtained by revolving the region bounded by $y = e^x$, $y = 0$, $x = 0$, $x = 1$ about the x -axis.

9. Find the volume of the solid obtained by revolving the region bounded by $y = 3x^2$, $0 \leq x \leq 2$, $y = 12$ and $x = 0$ about the y -axis.

10. Find the volume of the solid obtained by revolving the region bounded by $y = x^2$, $y = 4x$, about the x -axis, then the y axis.

11. Find the volume of the solid obtained by revolving the region bounded by $y = x^2$, $y = 4$, about the line $y = 4$.

12. Find the volume of the solid obtained by revolving the region bounded by $x = y^2$, $x = 1$, about the line $x = 1$.

13. Find the volume of the solid obtained by revolving the region bounded by $y = x$, $y = \sqrt{x}$, about the line $x = 2$.

14. Find the volume of the solid S described here:
The base of S is the region bounded by $y = x^2$
and $y = 4$. Cross-sections perpendicular to the
 y axis are squares.

15. Find the volume of the solid S described here:
The base of S is the triangular region with vertices $(0, 0)$, $(3, 0)$ and $(0, 2)$. Cross-sections perpendicular to the x axis are semi-circles.

**16. Find the volume of the solid S described here:
The base of S is the elliptical region**

17. $9x^2 + 4y^2 = 36$. Cross-sections perpendicular to the x axis are isosceles right triangles with hypotenuse in the base.