1. Find the area of the region bounded by the parabolas $y = x^2$ and $y = 2x - x^2$.

A) $\frac{1}{7}$ B) $\frac{1}{6}$ C) $\frac{1}{5}$ D) $\frac{1}{4}$ E) $\frac{1}{3}$

2. Find the area of the region bounded by the parabola $y = x^2 - x + 1$ and the line $y = x + 1$.

A) $\frac{8}{3}$ B) $\frac{3}{8}$ C) $\frac{4}{3}$ D) $\frac{3}{4}$ E) 1

3. Find the area of the region bounded by the curve $y = \sin x$, the lines $x = \frac{\pi}{6}$, $x = \frac{\pi}{3}$ and the x-axis.

A) $\frac{1}{2}$ B) $\frac{\sqrt{3}}{2}$ C) $\frac{\sqrt{3}+1}{2}$
D) $\frac{\sqrt{3}-1}{2}$ E) $\frac{\sqrt{3}-1}{4}$

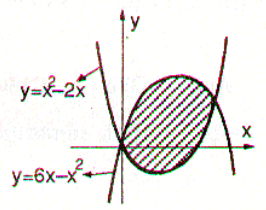
4. Find the area of the region between the curve $y = \cos x$ and the lines $x = 0, x = \frac{\pi}{2}, y = 0$.

A) $\frac{1}{4}$ B) $\frac{1}{2}$ C) $\frac{2}{3}$ D) 1 E) 2

5. Find the area of the region between the curves $x = \sqrt{y}$ and $y = \sqrt{x}$.

A) $\frac{1}{6}$ B) $\frac{1}{4}$ C) $\frac{1}{3}$ D) $\frac{2}{3}$ E) $\frac{1}{2}$

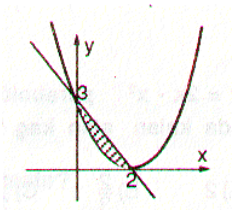
6.



Find the area of the shaded region.

A) $\frac{75}{4}$ B) $\frac{64}{3}$ C) $\frac{33}{2}$ D) $\frac{17}{3}$ E) $\frac{13}{3}$

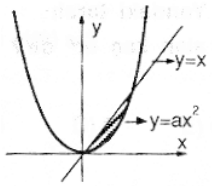
7.



Find the area of the shaded region.

A) 1 B) 2 C) 5/3 D) 4/3 E) 8/3

8.



If the area of the shaded region is $6\ u^2$, what is the value of a ?

A) $\frac{1}{2}$ B) $\frac{1}{6}$ C) $\frac{2}{9}$ D) $\frac{3}{10}$ E) $\frac{4}{7}$

9. Find the area of the region bounded by the curve $y^2 = 2x$ and the line $x + y = 0$.

A) 3 B) 2 C) $\frac{4}{3}$ D) 1 E) $\frac{2}{3}$

10. Find the area of the region between the curves $y^2 = 4x$ *and* $y^3 = 8x$.

A) $\frac{1}{12}$ B) $\frac{1}{9}$ C) $\frac{1}{6}$ D) $\frac{1}{3}$ E) $\frac{1}{2}$

11. Find the area of the region between the curve $y = e^{2x}$, the line $x = \ln 3$ and the x-y axis.

A) 1 B) 3 C) 4 D) 8 E) 10

12. The area bounded by the parabola $y = x^2 - 2$ and the line $y = 1$ is rotated about the y-axis. Find the volume of the solid figure formed.

A) $\frac{17\pi}{2}$ B) $\frac{9\pi^3}{4}$ C) $\frac{\pi}{2}$ D) $\frac{7\pi}{2}$ E) $\frac{9\pi}{2}$

13. The region bounded by the curve $y = x^3$ and $x = y^2$ is revolved about the y-axis. Find the volume of the solid generated.

A) $\frac{5\pi}{14}$ B) $\frac{2\pi}{3}$ C) $\frac{2\pi}{5}$ D) $\frac{3\pi}{5}$ E) $\frac{8\pi}{3}$

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