

Area Between Curves Problems

Let \mathbf{R} be the region bounded by the given curves. Find the area of the region \mathbf{R} .

1. $y = x$ and $y = x^2$
2. $y = x^2 + 2x + 1$ and $y = 2x + 5$
3. $y = x^2 - 4x + 3$ and $y = -x^2 + 2x + 3$
4. $y = x^2 + 2x - 1$ and $y = 3x + 3$
5. $y = -x^2 + 4x + 2$ and $y = x + 1$
6. $y = 6\sin(x)$ and $y = x + 2$
7. $y = 5\cos(x)$, $y = x$ and the y -axis.
8. $y = 4 - x^2$, $y = x$, $x = 0$ and $x = 1$.
9. $y = 4 - x^2$, $y = x$ and the x -axis.
10. $y = (x - 1)^3$ and $y = x - 1$
11. $x = y^2$ and $x = y + 2$
12. $x = 4y - y^2$ and $x = -y$

Answers

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|-------------------|-------------------|---------------------|
| 1. $\frac{1}{6}$ | 2. $\frac{32}{3}$ | 3. 9 |
| 4. 11.682 | 5. 7.812 | 6. 3.162 |
| 7. 3.973 | 8. $\frac{19}{6}$ | 9. 1.576 |
| 10. $\frac{1}{2}$ | 11. $\frac{9}{2}$ | 12. $\frac{125}{6}$ |