1 Area

Find the area enclosed by the curves.

1. $y = x(x^2 - 1)$ and the x-axis from $x = 1$ to $x = 3$.
2. $y = -x^2 + 3x$, the x-axis, $x = 0$, and $x = 2$.
3. $y = x(x - 1)^2$ and $y = 0$.
4. $y = 2 + x - x^2$ and $y = 0$.
5. $y = (4 + x)(2 - x)$ and the x-axis.
6. $y = 4x - x^3$, the x-axis, $x = 0$, and $x = 2$.
7. $y = \sqrt{x}$, the x-axis, and $x = 4$.
8. $y = x^3$, the x-axis, and $x = 2$.
9. $= e^x - x$, $y = 0$, $x = 1$, and $x = 5$.
10. $y = 1 + \cos x$, $x = -\pi$, $x = \pi$, and $y = 0$.
11. $y = 2x - x^2$ and $y = 0$.

Answers:

1. 16
2. $\frac{10}{3}$
3. $\frac{1}{12}$
4. $\frac{9}{2}$
5. 36
6. 4
7. $\frac{16}{3}$
8. 4
9. $e^5 - e - 12$
10. 2π
11. $\frac{4}{3}$