

Directions: find the area between the curve and the x-axis over the indicated interval.

1. $y = 2 - 2x$ on $[-1, 3]$

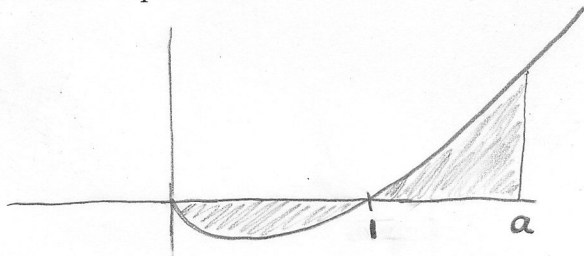
2. $y = x^2 - 4$ on $[-2, 2]$

3. $y = e^{x/2}$ on $[0, 4]$

4. $y = \sin 3x$ on $\left[-\frac{\pi}{2}, \frac{\pi}{2}\right]$

5. $y = \frac{\ln x^3}{x}$ on $\left[\frac{1}{e}, e^2\right]$

6. The graph of $y = x(x^2 - 1)$ is pictured in the following diagram. A) Find the area under the curve from $x = 0$ to $x = 2$. B) Find the value of a that would make the two areas equal.



Mixed Review

7. If $f(x) = x^{\ln x}$ then $f'(x) =$

8. $\int \cos^3 x dx =$

9. Given $f'(x) = \frac{1}{\sqrt{1-x^2}}$ find $f(x)$ given $f\left(\frac{1}{2}\right) = -\frac{5\pi}{6}$.

10. Find the intervals where the graph, $y = \frac{1}{12}x^4 - 2x^2$, is concave up and find the points of inflection.