Math 2215 - Calculus 1

Quiz #17 - 2017.11.07

Solutions

Find the area between the curve $f(x) = x^4 - 3x^2 + 2\sqrt{x} - 4$ and the x-axis on the interval $[0, 1]$.

$$\begin{aligned}
\mathcal{A} &= \int_0^1 x^4 - 3x^2 + 2\sqrt{x} - 4 \, \mathrm{d}x \\
&= \frac{1}{5}x^5 - x^3 + \frac{4}{3}x^{3/2} - 4x \Big|_0^1 \\
&= \frac{1}{5} - 1\frac{4}{3} - 4 \\
&= -\frac{52}{15}
\end{aligned}$$