

For full credit you must present a clearly organized solution, showing all supporting calculations.

1. Calculate the following derivatives by any means necessary. You do not need to simplify your final answers.

(a) $f'(x)$ for $f(x) = \frac{x^2 - 2\sqrt{x} + 1}{x^3}$,

(b) $\frac{d}{d\theta} \left((2^\theta - \theta^2) \cot(\theta) \right)$,

(c) $g''(t)$ for $g(t) = \sec t$.

2. Let $f(x) = e^x \cos x$. Find $f^{(18)}(x)$, the 18th derivative of $f(x)$.