

Practice Quiz 4 (L9-L10)

1. Find the derivatives.

(i) $\frac{d}{dx} \left(\frac{1}{x^2} - 6 \sec(3x - 1) + \pi^2 \right)$

(ii) $f''(x)$ if $f(x) = e^{3x^2-1} - 6x^2 \ln(x)$

2. The volume of a sphere of radius r is $\frac{4}{3}\pi r^3$.

(i) What is the instantaneous rate of change of the volume of a sphere with respect to its radius?

(ii) What is the rate of change of the volume of a sphere of radius $r = 2$ with respect to radius.