

(1) [3 points] Differentiate:  $v = t^3 - \frac{1}{\sqrt[5]{t^4}}$

(2) [4 points] Differentiate:  $y = \frac{x^2}{1 + \sqrt{x}}$

(3) [4 points] Determine  $\frac{dy}{dx}$ :  $y = (5x - 2)^4(7x^2 + 3)^{-2}$

(4) [4 points] Find  $f'(x)$ :  $f(x) = \cos(x \sin x)$