

(1) [6 points] Let  $f(x) = \frac{1}{\sqrt{x+2}}$ . Use the limit definition of the derivative to find  $f'(a)$ .

(2) [3 points] Differentiate  $v = t^2 - \frac{1}{\sqrt[4]{t^3}}$  .

(3) [3 points] Differentiate  $h(\theta) = \theta \csc \theta - \cot \theta$  .

(4) [3 points] Differentiate  $y = \frac{\sin x}{x^2}$  .