

(1) [3] Determine an equation of the tangent line to  $y = x + \sqrt{x}$  at the point  $(1, 2)$ .

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

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

(4) [3] Differentiate  $g(x) = x^3 \cos(x)$

(5) [3] Differentiate  $f(\theta) = \frac{\sec(\theta)}{1 + \sec(\theta)}$