

(1)[5 points] Simplify

$$\sin(\tan^{-1}(x))$$

(2)[5 points] Find the derivative of

$$H(x) = (1 + x^2) \arctan(x)$$

(3)[5 points] Find $g'(2)$ where

$$g(x) = x \sin^{-1}(x/4) + \sqrt{16 - x^2}$$