

Quiz 6

1. (2 points). Find two constants a and b such that the function

$$g(x) = \begin{cases} \sqrt{x} & \text{if } 0 < x < 1 \\ ax + b & \text{if } 1 \leq x \end{cases}$$

is continuous and differentiable on the domain $(0, \infty)$.

2. (3 points). (a) Find the derivative of $f(x) = \frac{x^2-1}{\sqrt{x-1}}$. Do not use the quotient or product rules. (b) What is the domain of the derivative?