

Quiz Math101 **01.10.2007**

Name
Stud ID

1) Find the slope of the tangent line to the curve $y = 3x - x^2$ at the point P(2,2).

Solution:

2) Compute

$$\lim_{x \rightarrow 2} \frac{\sqrt{x+2} - \sqrt{2x}}{x^2 - 2x}$$

Solution:

3) We consider the function

$$f(x) = \begin{cases} \sqrt{-x} & \text{for } x \leq 0 \\ 1 - \frac{1}{x} & \text{for } 0 < x \leq 1 \\ (x-1) \sin \frac{\pi}{\sqrt{x-1}} & \text{for } 1 < x \end{cases}$$

a) Where is f **continuous**?

b) At each point $a \in \mathbb{R}$ where f is **discontinuous**, determine the type of discontinuity.

Solution: