Quiz 4 (17-04-2018)

MATH-101, CALCULUS I

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Question 1. [**4 marks**] The position of a particle is given by the equation

$$s = f(t) = t^2 - 6\,t + 9,$$

where t is measured in seconds and s in meters.

(a) [2 marks] When is the particle moving backward?

(b) [2 marks] When is the particle slowing down?

Question 2. [**4 marks**]

(a) [2 marks] Find $\lim_{x\to\infty} \dfrac{\cosh x}{e^x}$.

(b) [2 marks] Prove that the equation $x^3 + x - 3 = 0$ has exactly one real root.