MATA 31 Calculus 1 winter 2024

Problem Set 2

Feb 11 - Feb 18 on Crowdmark

Each question is 25 points.

1. (25)

   (a) (15) Given that $\lim_{x\to 3}\sqrt{2x+3}=3$, find the largest δ that works for $\epsilon=0.1$

   (b) (10) Find all possible a such that the function $f(x)$ is continuous in its domain

$$f(x)=\begin{cases}2(x-a)^2 & \text{if } x\geq 1,\\ a^2-x^2 & \text{if } x<1.\end{cases}$$

2. (25) Find the limits (if they exist). No need to prove.

   (a) (5)

$$\lim_{x\to 0}\frac{2^x-5^x}{4^x}$$