

Worksheet 2, Math 1A

Proving Limits

Friday, September 20, 2013

Prove that the following limits hold, using ϵ - δ proofs or otherwise. (No limit laws.)

1. $\lim_{x \rightarrow a} x = a$

2. $\lim_{x \rightarrow 0} x^2 = 0$

3. $\lim_{x \rightarrow 1} x^2 = 1$

4. $\lim_{x \rightarrow -2} x^2 - 1 = 3$

5. $\lim_{x \rightarrow 0^+} \sqrt{x} = 0$

6. $\lim_{x \rightarrow -6^+} \sqrt[8]{x+6} = 0$

7. $\lim_{x \rightarrow a} \sqrt{x} = \sqrt{a}$

8. $\lim_{x \rightarrow 1} \frac{1}{x} = 1$

9. $\lim_{x \rightarrow 0} x \cos(\csc^2(x)) = 0$

10. $\lim_{x \rightarrow 1} x^{100} - 1 = 0$