

## Homework 3

Using only the definition, prove the following limits

(a)  $\lim_{x \rightarrow 3} 2x = 6$

(b)  $\lim_{x \rightarrow 3} \frac{1}{x} = \frac{1}{3}$

(c)  $\lim_{x \rightarrow -1} x^2 - 3x + 2 = 6$

(d)  $\lim_{x \rightarrow c} \sqrt{x} = \sqrt{c}$ , where  $c > 0$

(e)  $\lim_{x \rightarrow 1} \frac{x^2 - x + 1}{x + 1} = \frac{1}{2}$

(f)  $\lim_{x \rightarrow 8} \sqrt[3]{x} = 2$ .