

LECTURE 6: PRACTICE PROBLEMS

(1) Evaluate $\lim_{x \rightarrow 1} \frac{x^2 - 1}{x - 1}$.

(2) Evaluate $\lim_{x \rightarrow 4} \frac{x^3 - 4x^2 + x - 4}{x^2 - 2x - 8}$.

(3) Evaluate $\lim_{r \rightarrow 0} \frac{\sqrt{9-r} - 3}{r}$.

(4) Evaluate $\lim_{h \rightarrow 0} \frac{(3+h)^2 - 9}{h}$.

(5) Evaluate $\lim_{t \rightarrow 1} \frac{\sqrt{10-t} - 3}{1-t}$.

(6) Evaluate $\lim_{t \rightarrow 0} \frac{\frac{t}{t+1} - t}{t}$.

(7) Evaluate $\lim_{m \rightarrow 0} \frac{\frac{1}{m^2} - \frac{1}{m}}{\frac{1}{m^2}}$.

(8) Show that $x^{11} - x^2 - 2x + 1$ has a root in the interval $(1, 2)$.

(9) Show there exists a positive number whose square is 3.