Math330 HW6 (Fall 2020)

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Due Date: Oct. 21 (11:59 pm)

Problem 1 Use the formal definition to prove that

 $\lim_{n \to \infty} -n^2 + n = -\infty.$

Problem 2 Let the sequence $\{a_n\} = \{r^n\}$. Find $\limsup a_n$ and $\liminf a_n$ regarding the value of r.

For exercise 3 to 6, use the formal definition to prove the given limits

Problem 3

$$\lim_{x \to 1} \frac{2+4x}{3} = 2.$$

Problem 4

$$\lim_{x \to -3/2} \frac{9 - 4x^2}{3 + 2x} = 6.$$

Problem 5

$$\lim_{x \to 2} \frac{1}{x} = \frac{1}{2}.$$