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3. Function Properties

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Homework0 due Feb 8, 2023 08:59 -03 Completed

Asymptotics and Trends

3.5/4.0 points (graded)

For each of the following functions $f(x)$ below :

- Find its limits $\lim_{x \rightarrow \pm\infty} f(x)$ as x approaches $\pm\infty$.
- Choose the values of x where $f(x)$ is differentiable, i.e. $f'(x)$ exists
- Choose the values of x where $f(x)$ is also strictly increasing, i.e. $f'(x) > 0$.

1. For $f(x) = \max(0, x)$:(Recall the function $\max(0, x)$ is the function that outputs the maximum value each x .)(If the limit diverges to infty, enter **inf** for ∞ , and **-inf** for $-\infty$)

$$\lim_{x \rightarrow -\infty} f(x) =$$

0

✓

0

$$\lim_{x \rightarrow +\infty} f(x) =$$

inf

✓

inf

Choose the intervals of x where $f(x)$ differentiable: $f'(x) > 0$:

(Choose all that apply.)

- | | |
|---|---|
| <input checked="" type="checkbox"/> $x < 0$ | <input type="checkbox"/> $x < 0$ |
| <input checked="" type="checkbox"/> $x = 0$ | <input type="checkbox"/> $x = 0$ |
| <input checked="" type="checkbox"/> $x > 0$ | <input checked="" type="checkbox"/> $x > 0$ |



(Graph this function on a piece of paper!)

(Choose all that apply.)



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