

MATH 1271 SECTION 30 RECITATION QUIZ 3

Grader: Cihan Bahran

Name: _____

Time limit: 20 minutes

TA: _____

NO CALCULATORS. NO HANDHELD DEVICES. NO BOOKS OR REFERENCE MATERIALS OF ANY KIND.

1. (40 points) Consider the function

$$f(x) = \frac{1}{(2+x)^2}.$$

By using the definition of the derivative, find $f'(2)$. You are not allowed to use the differentiation rules.

2. (15 points) Is the following statement true or false?

$$\lim_{x \rightarrow -\infty} \ln\left(\frac{-1}{x}\right) = -\infty$$

True

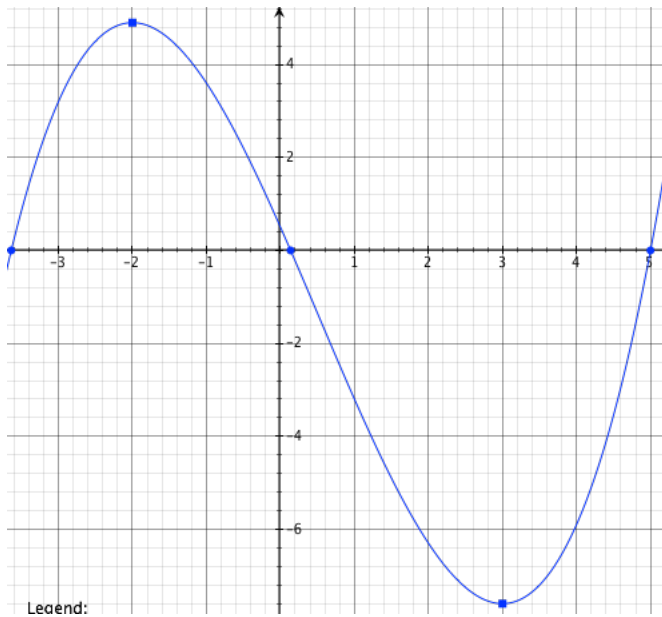
False

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3. (25 points) Find

$$\lim_{x \rightarrow \infty} \frac{4x^2 + 7x - 8x^3 + 19}{3x^2 + 6x + 5}.$$

4. (20 points) Suppose $f(x)$ has the following graph.



Which of the following is true about the derivative function $f'(x)$?

- (A) $f'(-2) > 0$.
- (B) $f'(-1) < 0$.
- (C) $f'(3) < 0$.
- (D) $f'(5) = 0$.

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