

Name: _____

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There are 25 points possible on this quiz. No aids (book, calculator, etc.) are permitted. **Show all work for full credit.**

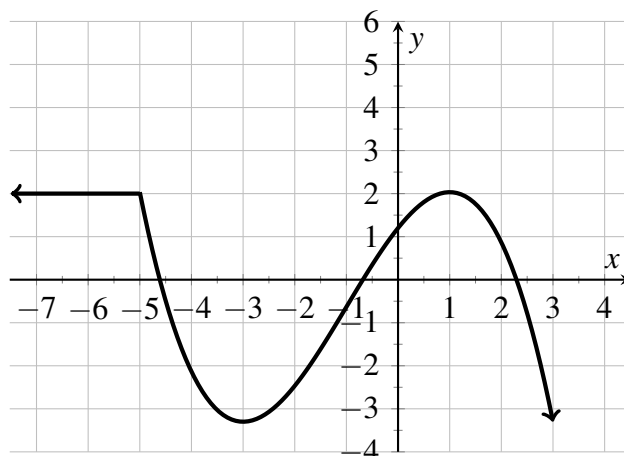
1. [8 points] Use the limit definition (given below) of the derivative to find the derivative of

$$f(x) = \frac{3}{x} + 5.$$

Show all your work clearly, step by step, using correct notation. **No credit will be awarded for a solution that does not use the definition below.**

$$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$$

2. [5 points] The function $y = H(x)$ is graphed below. Sketch the graph of $H'(x)$ on the same set of axes.



3. [12 points] For each function below, **find its derivative**. You may use any method you like. You do not have to simplify your answer.

a. $f(x) = x^6 + 7x^3 - x^{-3}$

b. $g(x) = \sqrt{x} (3x - 4x^3)$

c. $h(x) = x^3 \sin(x) + \cos\left(\frac{\pi}{3}\right)$

d. $G(x) = \frac{\cos(x) + x + 14}{x^2}$