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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. [2 points] State the definition of f'(x), the derivative of the function f(x).

2. [8 points] Use the definition (above) to find the derivative f'(x) when $f(x) = \frac{5}{x+1}$.

3. [3 points] Use the Quotient Rule to find f'(x) if $f(x) = \frac{\sin(x)}{x^2+1}$. (You do not need to simplify your answer.)

- **4. [6 points]** Find the derivative for each function below. Simplify your answer.
 - **a.** $y = 2x^{4.1} x + \pi^2$

b. $y = 7x\cos(x)$

- **5.** [6 points] Assume C(q) is the cost, in dollars, of manufacturing q widgets.
 - **a.** Using a complete sentence (or sentences), interpret the meaning of C(50) = 1120.

b. What are the units of C'(q)?

c. Using a complete sentence (or sentences), interpret the meaning of C'(50) = 15.