| mA 125-06 <br> §2.4-2.8 | QuiZ \#3 |  | same: $\frac{\text { score }}{}$ |
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1. Let $f(x)$ be as defined below. Determine if $f(x)$ is continuous at $x=2$ by checking the definition of continuity. Fully explain the limits you calculate. (5 points)
$f(x)= \begin{cases}\frac{x-1}{x^{2}-3} & \text { for } x \leq 2 \\ x^{3}-4 x+1 & \text { for } x>2\end{cases}$
2. Evaluate the following limit. Show the algebraic details. (5 points) $\lim _{x \rightarrow \infty} \frac{2 x^{3}-3 x+1}{x^{3}+x^{2}+x+1}$
3. Let $f(x)=\sqrt{x}$. Use the definition of derivative to find $f^{\prime}(4)$. Then find the equation of the tangent line to the graph of $f$ when $x=4$. (5 points)
4. The graph to the right is a graph of a function $f(x)$.

Sketch the graph of $f^{\prime}(x)$. (5 points)


