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Name:

*"A recall is worth a thousand repetitions"*
*-Dr. Wayne Iba*

Collaborators:

Section Day/Time:

## Exam 1 Practice Worksheet

**1.** Find an equation of the line that passes through the points on the graph $f(x) = x^2$ when $x = 3$ and $x = 5$. Write the equation in point-slope form.

**2.** The point $(5, 1)$ is on the graph of $f(x) = \sqrt{x-4}$.

a) Compute the slope of the secant line through $(5, 1)$ and the point that is on the graph of $f(x)$ at $x = 5.01$.

b) Use this answer to guess the slope of the tangent line to $f(x)$ at the point $(5, 1)$.

**3.** Evaluate the limit $\lim_{h\to 0} \frac{\sqrt{1+h}-1}{h}$.

**4.** Find and sketch all asymptotes (vertical and horizontal) of the graph $f(x) = \frac{3x^2+1}{x^2-4}$.

**5.** Use the Intermediate Value Theorem to show that the function $f(x) = x^4 + x - 9$ has a root on the open interval $(1, 2)$. *(Note: You do not need to actually find a root.)*

**6.** Let $f(x) = \sqrt{5-x}$. Find $f'(x)$ using the limit definition of a derivative.

**7.** Use the given graph of the function $f(x)$ below to sketch the graph of $f'(x)$ on the same set of axes.