The majority of the credit you receive will be based on the completeness and the clarity of your responses. Show your work, and avoid saying things that are untrue, ambiguous, or nonsensical. This quiz has 2 questions, for a total of 10 points.

(5 points) 1. Given $f(x) = 5 - x^2$, find the slope of the tangent line to the curve at the point $(1, 4)$.

$$\frac{f(1+h) - f(1)}{h} \;=\; \frac{(5 - (1+h)^2) - 4}{h} \;=\; \frac{(1 - (1 + 2h + h^2))}{h} \;=\; \frac{-2h - h^2}{h} \;=\; -2 - h$$

As $h \to 0$, $-2 - h \to -2$. So the slope $= -2$.

(5 points) 2. $\displaystyle\lim_{x \to 2} \frac{x^2 - 7x + 10}{x - 2}$

$$\lim_{x \to 2} \frac{x^2 - 7x + 10}{x - 2} \;=\; \lim_{x \to 2} \frac{(x - 2)(x - 5)}{x - 2} \;=\; \lim_{x \to 2} x - 5 \;=\; -3$$