Name: __________________________________________

Clear your desk of everything except pens, pencils and erasers. If you have a question raise your hand and I will come to you.

1. (2 points) Multiple Choice. No work needed. No partial credit available. Let \( f(x) = 1 - 3x \) and \( \epsilon > 0 \). What is the largest choice of \( \delta \) for which \( |x - 1| < \delta \) implies that \( |f(x) + 2| < \epsilon \)?

   A. \( \delta = 1 \)
   B. \( \delta = \epsilon \)
   C. \( \delta = \frac{\epsilon}{2} \)
   D. \( \delta = \frac{\epsilon}{3} \)
   E. There is no value of \( \delta \) that will work.

2. (1 point) Fill-in-the-Blank. No work needed. No partial credit available.
   The limit
   \[
   \lim_{{h \to 0}} \frac{\sqrt{9 + h} - 3}{h}
   \]
   is \( \frac{1}{6} \).
3. (2 points) Suppose that $2x \leq g(x) \leq x^4 - x^2 + 2$ for all $x$. Compute the limit

$$\lim_{x \to 1} g(x)$$

and justify your answer.

Note that $\lim_{x \to 1} 2x = 2$ and $\lim_{x \to 1} x^4 - x^2 + 2 = 1 - 1 + 2 = 2$.

So by the Squeeze Theorem, $\lim_{x \to 1} g(x) = 2$ as well.