Name ________________________________

- No calculators are allowed.

1. (2 points) Find the domain of the function $f(x) = \sqrt{6 - 2x}$.

   $6 - 2x \geq 0 \Rightarrow 6 \geq 2x \Rightarrow 3 \geq x$

   So the domain is

   $(-\infty, 3]$  

2. (3 points) Suppose that $f(x) = \frac{1}{4 - x}$ and $g(x) = 2^x$.

   (a) Find a formula for $(f \circ g)(x)$.

   \[
   f(g(x)) = \frac{1}{4 - g(x)} = \frac{1}{4 - 2^x}
   \]

   \[
   f(2^x) = \frac{1}{4 - 2^x}
   \]

   (b) Find the domain of $(f \circ g)(x)$.

   $4 - 2^x \neq 0 \Rightarrow 4 \neq 2^x \Rightarrow x \neq \log_2(4)$

   $(-\infty, \log_2(4)) \cup (\log_2(4), \infty)$
3. (2 points) If the point (2, 3) is on the graph of an odd function, then what other point must also be on the graph?

\[ (-2, -3) \]

4. (3 points) Carefully sketch the graph of \( y = 3 + 2e^{-x} \). If there are any horizontal or vertical intercepts or asymptotes, then their locations should be accurately shown on your graph.