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 $f(x) = \dfrac{1}{4 - x}$ and $g(x) = 2^x$.

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

$f(g(x)) = \dfrac{1}{4 - g(x)} = \dfrac{1}{4 - 2^x}$

$\| \quad \| \quad \|$

$f(2^x) = \dfrac{1}{4 - 2^x}$

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

$4 - 2^x \neq 0 \Rightarrow 4 \neq 2^x \Rightarrow x \neq 2$

$(-\infty, 2) \cup (2, \infty)$

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.