Math 220-05 Spring 2019 Quiz 1 _____

1. Sketch the graphs of these essential functions, $y = f(x)$:

$$y = 5 \qquad y = \sqrt{x} \qquad y = \log_2 x \qquad y = e^{-x}$$

2. Given $f(x) = \sqrt{x}$ and $g(x) = \dfrac{4}{x-1}$, find $(f \circ g)(x)$ and its domain in interval notation.

3. Daniel decorates personalized guitar picks, which he sells online. Each pick uses $3 in materials (pick and paints). His rent and utilities are $32/day. He sells the finished picks for $5 each. How many guitar picks must he sell each day to break even? (SHOW ALL YOUR WORK!)

4. The marginal cost of producing 50 units of a certain commodity is $8. Explain, in words, what this means.

5. Solve the following exponential equations:

$$9^x = 27^{x-2} \qquad e^{x-1} = 5^x$$