Directions: Please answer the following questions and make sure your answer are legible. If you don’t show work and/or I can’t follow it, I won’t give partial credit. You may not use a calculator (or any other technology) on this quiz. Good Luck.

1. (4 points) For the function pictured:
   (a) On what interval(s) is the function increasing?
   (b) Is the function even, odd, or neither?
   (c) Find the absolute maximum of $f(x)$ (if it exists)
   (d) Find the absolute minimum of $f(x)$ (if it exists)

2. (5 points) Sketch the following function. Be sure to label at least 3 points on the graph.

   $$f(x) = \begin{cases} 
   |x| & \text{if } -1 \leq x < 2 \\
   -1 & \text{if } 2 < x < 4 
   \end{cases}$$

*there are many different points you could label*

There is a Question On The Back
3. (6 points) Graph the following function using the techniques of shifting, compression, stretching and/or reflecting. Show and label all stages for partial credit. Be sure to show at least 3 key points.

\[ f(x) = (-2x + 1)^3 \]

Start: \( x^3 \)

1. \( \text{reflect about } y-axis \)

\[ y = (-x)^3 \]

2. \( \text{replace } x \text{ by } x - \frac{1}{2} \)

\[ y = (-2(x - \frac{1}{2}))^3 \]

3. \( \text{shift right } \frac{1}{2} \text{ unit} \)

\[ y = (-2(x - \frac{1}{2} + 1))^3 \]

Extra info: 

\( I \to II \) slip sign on x coord.

\( II \to III \) multiply each x coord. by \( \frac{1}{2} \)

\( III \to IV \) add \( \frac{1}{2} \) to each x coord.