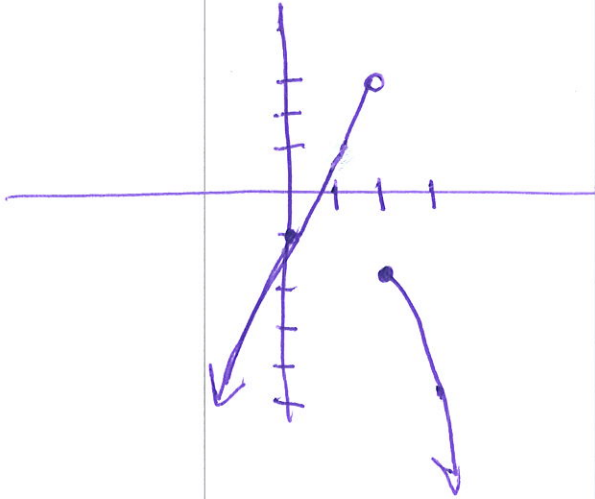**Instructions**: Show all work. Use exact answers unless otherwise asked to round.

1. Sketch the graph of the function $f(x) = \begin{cases} 2x - 1, & x < 2 \\ -\frac{1}{2}x^2, & x \geq 2 \end{cases}$

2. For the function above, find the following:
   a. Any symmetry of the function.

   b. The intervals on which the graph is increasing, decreasing or constant.

   inc. $(-\infty, 2)$ dec. $(2, \infty)$

   c. Any relative maxima or minima.

   $x = 2$ is a relative max

   d. The domain and range.

   D: $(-\infty, \infty)$

   R: $(-\infty, 3)$