**8.*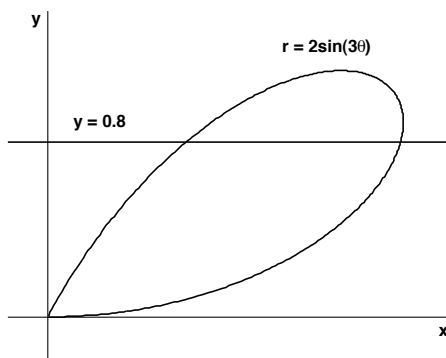* [14 points] Consider the area contained above the line $y = 0.8$, and below the curve $r = 2\sin(3\theta)$. You may find the following figure helpful.

a. [4 points] Find the (x, y) coordinates for the two points where $y = 0.8$ and $r = 2\sin(3\theta)$ intersect as shown in the figure above. Show enough work to support your answer.

b. [4 points] Write an expression for the area that is specified. You do not need to evaluate your expression.

c. [6 points] Calculate the perimeter that surrounds the specified area. You may round your final answer to two decimal places.