MATH 65B - Spring 2018

Groupwork 8: March 29, 2018

1. Give a sketch of the following polar curves. Be sure to label the x and y intercepts of the curves.

(a) $r = \sin(\theta)$
(b) $r = 4\sin(3\theta)$

Please, show all work.

2. (a) Find the slope of the tangent line to the given polar curve at the point specified by the value of θ.
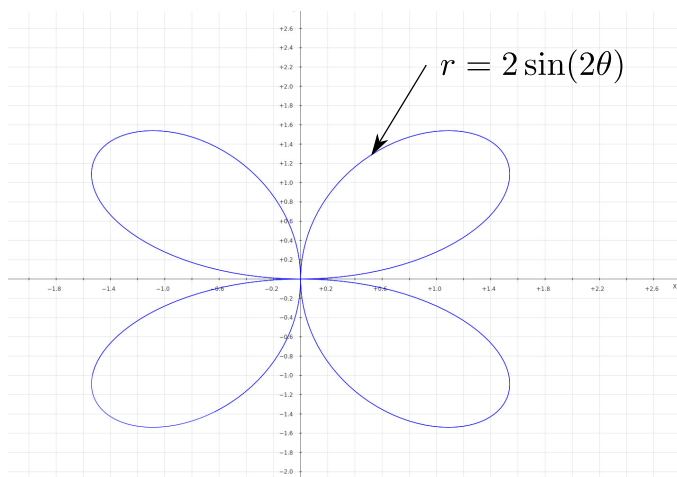
$$r = 2\sin(\theta), \qquad \theta = \frac{\pi}{6}$$

(b) Find the points on the given polar curve where the tangent line is horizontal and vertical.

$$r = 2\sin(\theta)$$

Please, show all work.

3. Find the area of one petal of the polar rose given by:
$$r = 2\sin(2\theta)$$

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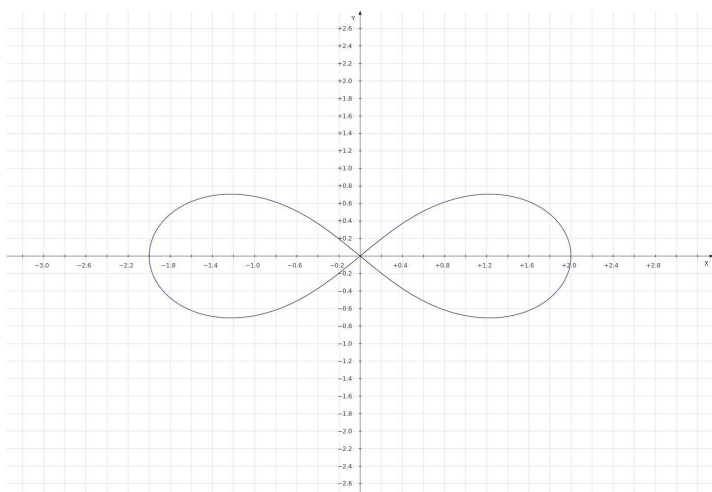**Please, show all work.**

4. Find the area of region bounded by the lemniscate.

$$r^2 = 4\cos(2\theta)$$

Please, show all work.