QUIZ 2 (35MINS, 30PTS)

Please write down your name, SID, and solutions discernably.
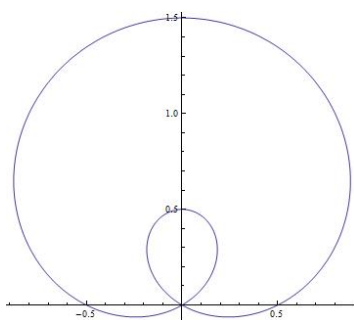
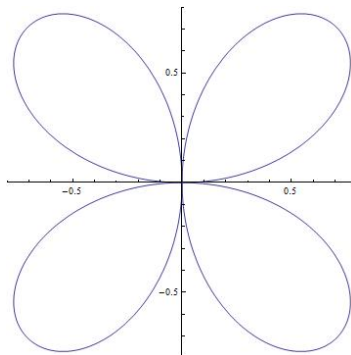Name :   SID :   Score :

1. (**10pts**) Find the slope of the tangent line to the given polar curve at the point specified by the value of θ.

$$r = \sin\theta + 0.5, \theta = \frac{5\pi}{3}$$

2. (10pts) Find the area of 4 leaves of the graph of $r = \sin 2\theta$.

3. (10pts : 2.5pts each) Determine whether the given vectors are orthogonal, parallel, or neither.

a) $\mathbf{a} = \langle -3, 2, 7 \rangle$, $\mathbf{b} = \langle 2, 3, 0 \rangle$

b) $\mathbf{a} = \langle 3, -5 \rangle$, $\mathbf{b} = \langle -9, 15 \rangle$

c) $\mathbf{a} = \mathbf{i} + 7\mathbf{j} + 2\mathbf{k}$, $\mathbf{b} = -\mathbf{i} + 4\mathbf{j} + 13\mathbf{k}$

d) $\mathbf{a} = -2\mathbf{i} + 8\mathbf{j} - 4\mathbf{k}$, $\mathbf{b} = 3\mathbf{i} - 12\mathbf{j} + 6\mathbf{k}$