

Math 116 Fall 2016 Exam 2 Answers

1) a) $(0,4)$

b) $(2\sqrt{2}, 5\pi/4)$ and $(2\sqrt{2}, 13\pi/4)$ are two possibilities

2) a) $\langle 4 \cos(t), 4 \sin(t) \rangle$ is one possibility

b) $0 = x^2 - 2xy + y^2 - 2x - 2y$.

3) $\left\langle t, \frac{e}{t} + \ln(2) - \frac{1}{e} \right\rangle$ is one possibility

4) a) $\int_{\pi/6}^{\pi/4} \sqrt{(\sin(t) \cos(t))^2 + \left(\frac{1 + \cos^2(t) - \sin^2(t)}{2}\right)^2} dt$

b) $\frac{\sqrt{2} - 1}{2}$

5) a) $2\pi \int_e^{e^2} \ln(t) \sqrt{\left(\frac{1}{t}\right)^2 + \left(\frac{t}{\sqrt{t^2-1}} + \frac{1}{t\sqrt{t^2-1}}\right)^2} dt$

b) $2\pi e^2$