

Math 151 Practice Test 4

1. Find an equation of the parabola with focus  $(-5, 0)$  and directrix  $x = 0$ .
2. Graph, indicating any of the following that apply: center, foci, directrix, vertices, asymptotes or axes.  
$$2x^2 + 3y^2 + 12x - 24y + 60 = 0$$
3. Rotate the coordinate axes to remove the  $xy$ -term. Name the conic, and sketch the graph:  $x^2 + 4xy - 2y^2 - 6 = 0$ .
4. Find an equation of the hyperbola with focus  $(8, -1)$  and asymptotes  $3x - 4y = 13$  and  $3x + 4y = 5$ .
5. Express in rectangular form:  $r = -5\cos\theta$ .
6. Express in polar form:  $x + y = 4$ .
7. Graph:  $r = \cos 4\theta$ .
8. Find the area in inside  $r = 2\sin\theta$  and outside  $r = 1$ .
9. Sketch the parametric curve:  $x = e^t, y = 4e^{2t}$ .
10. Find the arc length of  $r = \theta, 2\pi \leq \theta \leq 4\pi$ .