

1.
 - a. i. ellipse ii. ellipse iii. ellipse
 - b. i. hyperbola, line ii. parabola iii. parabola
 - c. i. line ii. circle iii. line
 - d. i. circle ii. hyperbola, line iii. hyperbola, line

2.

$$x = 2 \cos t \quad y = 3 \sin t, \quad 0 < t < 2\pi$$

$$Perimeter = \int_0^{2\pi} \sqrt{4 \sin^2 t + 9 \cos^2 t} dt$$

Another possible parametrization is obtainable by solving for y in terms of x , which will cover either the top or bottom half of the ellipse. The corresponding integral must then be doubled to obtain the entire perimeter.