

Math 173 – Assignment #5

Name: _____

1. Use the information given to solve the following triangles, if possible.

a) $a = 3.2, b = 3.5, c = 4.9$

b) $b = 31, c = 35, B = 55^\circ$

2. Douglas Street runs due north, while Burnside Road branches off from it running northwest (assume it's exactly NW). Let's suppose that between these two streets is a nice triangular park with area 133 m^2 , and the side running alongside Douglas is 22 m long. How long is the side next to Burnside?

3. Change the following complex number into trig form (or $re^{i\theta}$, if you prefer).

a) 18

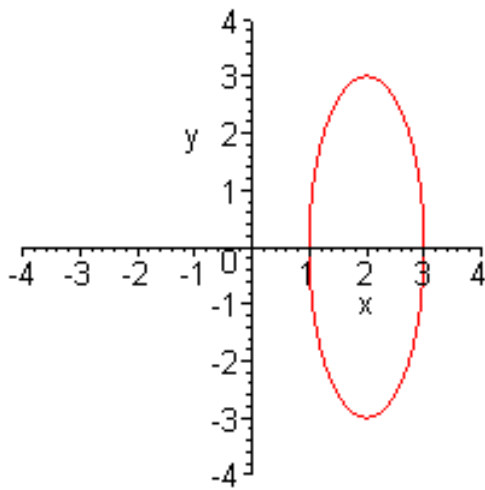
b) $-5i$

c) $-10\sqrt{3} + 10i$

4. Divide the two numbers using whatever method you wish. Give an exact answer (any form is acceptable).

$$\frac{18\left(\cos\frac{\pi}{2} + i\sin\frac{\pi}{2}\right)}{3\left(\cos\frac{3\pi}{4} + i\sin\frac{3\pi}{4}\right)}$$

5. Write the equation for the ellipse graphed below. Also, state the coordinates of the foci and all of the vertices. Lastly, calculate the eccentricity.



equation: _____

foci: _____

vertices: _____

eccentricity: _____

6. Complete the square to convert the following equation to the form of a conic section. Which conic section is it (parabola, circle, ellipse, hyperbola)? What are the coordinates of the centre?

$$9x^2 + 4y^2 - 54x + 16y + 61 = 0$$

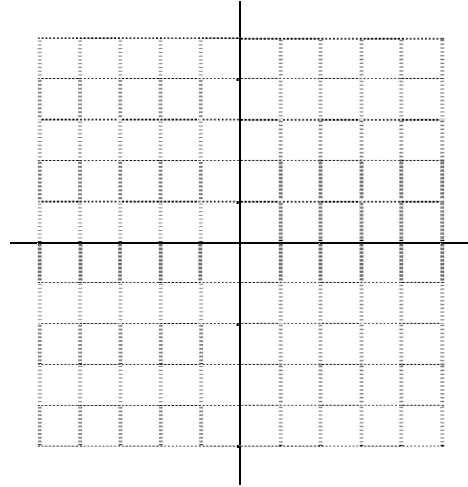
equation: _____

which conic? _____

centre: _____

7. Find the centre, vertices, foci, and eccentricity of the following hyperbola. Sketch the graph as accurately as possible, including the asymptotes.

$$9y^2 - 18y - 4x^2 - 16x - 43 = 0$$



centre: _____

vertices: _____

foci: _____

eccentricity: _____