

Math 173 – Quiz #5

March 19th, 2009
Instructor: Patricia Wrean

Name: _____

Total: 40 points

1. Use the information given to solve the following triangles, if possible. Round off all **angles** to the nearest integer. (10 points)

a) $a = 4.1, b = 3.5, c = 1.2$

b) $a = 3.2, b = 8.5, A = 30^\circ$

2. For the following triangle, calculate the length of side c . (2 points)

a) $a = 53, b = 53, B = 60^\circ$ _____

3. Write the following complex number in the form $a+bi$. (2 points)

$2(\cos 120^\circ + i \sin 120^\circ)$ _____

4. Write the following either in trig form or as $re^{i\theta}$, your choice. (3 points)

$-7i$ _____

5. Multiply the two numbers below using whatever method you wish. (3 points)

$3\left(\cos\left(-\frac{\pi}{3}\right) + i \sin\left(-\frac{\pi}{3}\right)\right) \times 4\left(\cos\frac{5\pi}{6} + i \sin\frac{5\pi}{6}\right)$ _____

6. Calculate the coordinates of the vertex and focus of the following parabola. Also, state the equations of the directrix and axis of symmetry. You do not need to sketch the parabola, though I've included a grid for any rough work. (5 points)

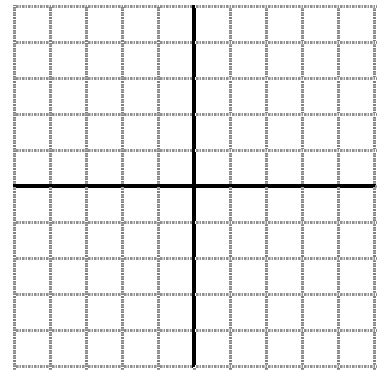
$$(x + 3)^2 = 8(y - 1)$$

vertex: _____

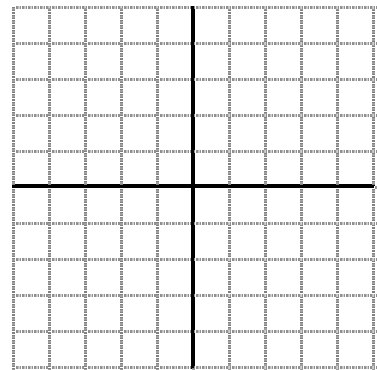
focus: _____

directrix: _____

axis of symmetry: _____

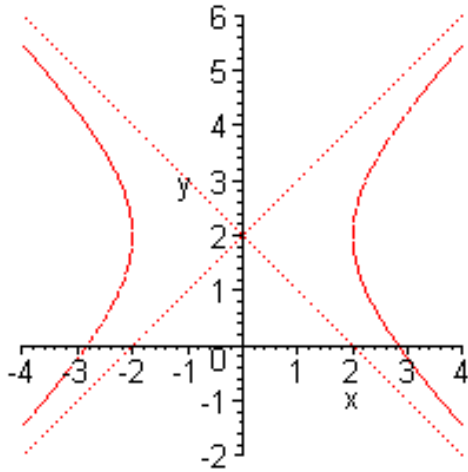


7. Give the equation of the ellipse with vertices at $(3, \pm 2)$ and foci at $(3, \pm \sqrt{3})$. Also, sketch the graph as accurately as possible. (5 points)



equation: _____

8. Write the equation for the hyperbola shown in the graph below. (The dashed lines in the graph are the asymptotes.) Also, give the coordinates of the foci. (5 points)



equation: _____

foci: _____

9. 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? (5 points)

$$x^2 + y^2 - 12x + 6y + 29 = 0$$

equation: _____

which conic? _____

centre: _____