Math 1151 Midterm III, November 17, 2000, 9:05 - 9:55

Lecturer: Mark de Longueville

Name:

ID number:

Recitation section #:

Recitation instructor:

Room in which you are right now:

Seat # (if there is one):

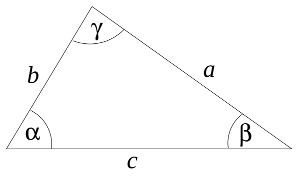
Signature:

1	2	3	4	5	6	7
/15	/15	/15	/10	/10	/10	/25

Sum: /100

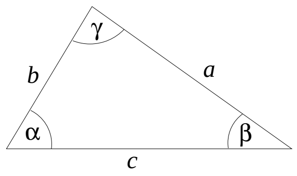
Grade:

Problem 1: Solving triangles (ASA) Solve the following triangle (15 points):



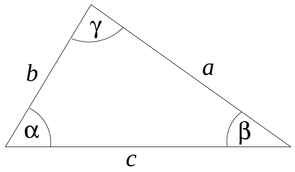
where $c = 4$, $\alpha = 70°$, $\beta = 60°$.

Problem 2: Solving triangles (SSA) Solve the following triangle (15 points):



where $b = 3$, $c = 5$, $\beta = 30°$. How many solutions did you get?

Problem 3: Solving triangles (SAS) Solve the following triangle (15 points):



where $a = 6,\ b = 4,\ \gamma = 60^\circ$.

Problem 4: Finding the area (SSS) Find the area of a triangle with side lengths $a = 8$, $b = 7$, $c = 5$ (10 points).

Problem 5: Transforming polar coordinates to rectangular coordinates You are given a point in the plane by the polar coordinates $r = 3$ and $\theta = 120^\circ$. What are the rectangular coordinates x, y, of this point (10 points)?

Problem 6: Transforming rectangular coordinates to polar coordinates You are given a point in the plane by the rectangular coordinates $x = 3$ and $y = -2$. What are the polar coordinates r, θ, of this point, where you restrict yourself to values $r \geq 0$ and $0 \leq \theta < 2\pi$ (10 points)?

Problem 7: A polar equation a) Test the polar equation $r = 6 \sin \theta$ on symmetries with respect to the

- x-axis,
- y-axis, and the
- origin.

(15 points)

b) Graph the polar equation $r = 6\sin\theta$ in the following coordinate system (10 points).