

Math 1151 Sample Exam-3

Name:

I.D.

Section No.

April 16, 2007

Show all your work for full credits. No calculator, notes, or books are allowed. Try to simplify your answers as much as possible. The total score will be of 100 points.

1. (10 points) Solve the following equation.

$$x^2 - 15x + 56 = 0$$

2. (10 points) Use the factor theorem to decide whether $(x - c)$ is a factor of each $f(x)$.

(a) $f(x) = x^3 - 8x - 3$; $(x - 3)$.

(b) $f(x) = 4x^3 - 3x^2 - 8x + 4$; $(x - 2)$.

3. (30 points) Find all complex solutions of each of the following equation. [Hint: You may use Rational Zeros Theorem.]

(a)

$$x^3 - 5x + 4 = 0.$$

(b)

$$x^4 - 16 = 0.$$

4. (20 points) Using the **Law of Sines**, solve each triangle. Sketch the resulting triangle and specify the values of a, b, c, α, β , and γ . You do not need to approximate your answers.

(a)

$$\alpha = 40^\circ, \beta = 60^\circ, a = 5.$$

(b)

$$\alpha = 15^\circ, \beta = 75^\circ, c = 3.$$

5. (30 points) Using the **Law of Cosines**, solve each triangle. Sketch the resulting triangle and specify the values of a, b, c, α, β , and γ .

(a)

$$a = 3, b = 3\sqrt{2}, \gamma = 45^\circ.$$

(b)

$$b = 2, c = 2, \alpha = 135^\circ.$$