

Ninth Lab For M242, Summer 2000

Due on Thursday, July 6, 2000

Topic : Solving systems of equations. Plotting curves given in parametric form or in polar coordinates.

Problem 1

Read Section 1.12 of the tutorial, paying particular attention to the `allvalues` command.

1. [5] Determine all solutions of

$$x^2 + y^2 = z^2, \quad x + 2y + 3z = 6, \quad x - y + z = 10 .$$

2. [7] Determine the value of $\sin(xy + z)$ at each of the solutions obtained in (1). You must do this without copying any results of previous Maple commands.

Problem 2

Read Section 1.11 of the tutorial, paying particular attention to the `polarplot` and `display` commands. Be careful about the use of the colon and the semicolon.

1. [5] In the same plot display the two curves

$$x = 2 \cos t + \cos(2t), \quad y = 2 \sin t - \sin(2t), \quad 0 \leq t \leq 2\pi$$

$$x = 9 \cos t - \cos(9t), \quad y = 9 \sin t - \sin(9t), \quad 0 \leq t \leq 2\pi$$

2. [8] In the same plot display the hyperbola

$$\frac{x^2}{4} - y^2 = 1$$

and its asymptotes. Color the hyperbola red and the asymptotes green. Choose your ranges so that a reasonable picture is displayed.

What To Hand In

Submit your Maple work for Problems 1 and 2. The Maple report must be organized as explained in section 2.1 of the tutorial.