**IV. Unit 4: Parametric and Polar Equations**

1. **Plane Curves and Parametric Equations -**

Assignment: pg 672, #3-66 by 3’s.

1. **Parametric Equations and Calculus -**

Assignment: pg 681, #3 – 51 by 3’s.

1. **Polar Coordinates and Polar Graphs -**

Assignment: pg 691, #3 – 75 by 3’s.

1. **Area and Arc Length in Polar Coordinates-**

Assignment: pg 700, #3 – 42 by 3’s.

Evaluation: Test covering sections 10.2 – 10.5

* **January**

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| --- | --- | --- | --- | --- |
| **Monday** | **Tuesday** | **Wednesday** | **Thursday** | **Friday** |
| **6**  **10.2** | **7**  **10.2** | **8 EP**  **10.3** | **9 10 ER**  **10.3** | |
| **13**  **10.2 & 10.3**  **QUIZ** | **14**  **10.4** | **15**  **10.4** | **16**  **10.5** | **17**  **10.5** |
| **20**  MLK  NO SCHOOL | **21** | **22**  **Ch 10 Test** | **23** | **24** |
| **27** | **28** | **29** | **30** | **31** |

**IV. Unit 4: Parametric and Vector Equations**

**A. Parametric Equations**

This section focuses on the concept of parametric equations, and solving problems by changing variables and parameters. Applications of differentiation and integration are also practiced. The use of a graphing calculator is highly extensive here, as students switch between parameters, and graph the various parametric equations (especially polar graphs). The calculator is also used as a tool for discovery and problem solving when comparing derivatives, and calculating the area using parametric equations. The text is used to aid in graphical, analytical, numerical, and verbal understanding.

Topic Outline:

**1. Plane Curves and Parametric Equations -**

Concepts: Understand and interpret the graph of a curve given by a set of parametric equations. Eliminate the parameter; find a set of parametric equations to represent a curve.

Assignment: pg 672, #3, 5, 8, 15, 17, 18, 21, 30, 31, 33, 39, 44, 51, 52, 66.

**2. Parametric Equations and Calculus -**

Concepts: Find the slope a tangent line of a parametric curve. Determine arc length, and find the area of a surface of revolution (given in parametric form)

Assignment: pg 681, #1-4, 6, 8, 9, 11, 15, 17, 20, 21, 25, 26, 29, 35, 36, 39, 49, 50.

**3. Polar Coordinates and Polar Graphs -**

Concepts: Understand the polar coordinate system, and utilize to rewrite rectangular equations in polar form (and vice versa). Sketch the graph of an equation given in polar form, and find the slope of a tangent line.

Assignment: pg 691, #1, 3, 11, 12, 21, 24,25, 28, 29, 32, 55, 59, 61, 67, 75, 77, 80.

**4. Area and Arc Length in Polar Coordinates-**

Concepts: Calculate the area of a region bounded by a polar graph. Determine arc length and area of a polar graph.

Assignment: pg 700, #1, 3, 4, 13, 14, 27, 33, 41, 42.

Evaluation: Test covering sections A1-A4.