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|  | | **SRM Institute of Science and Technology**  **Kattankulathur** |  |
| **DEPARTMENT OF MATHEMATICS** |
| **18MAB101T Calculus and Linear Algebra** |
| **Module –IV** |
|  | | **Tutorial Sheet -1** | **Answers** |
| **1.** | Find the radius of the curve  at (0, 1) | |  |
| **2.** | Find the radius of curvature at the point  on the curve . | |  |
| **3.** | Show that the radius of curvature at any point of the catenary  is . Also find  at (0, c). | |  |
| **4.** | Find the radius of curvature at the point (c, c) on the curve | |  |
| **5.** | Find  at any point  on the parabola. | |  |
| **6.** | Find the radius of curvature at any point  of the curve . Also show that . | |  |
| **7.** | Show that the radius of curvature at any point of the curve ,  is twice the perpendicular distance of the tangent at the point from the origin. | |  |
| **8.** | Prove that the radius of curvature at any point of the cycloid  is . | |  |
| **9.** | Show that the line joining any point  on  to its centre of curvature is bisected by the line y = 2a. | |  |
| **10.** | Find the circle of curvature of the curvature  at the point . | |  |