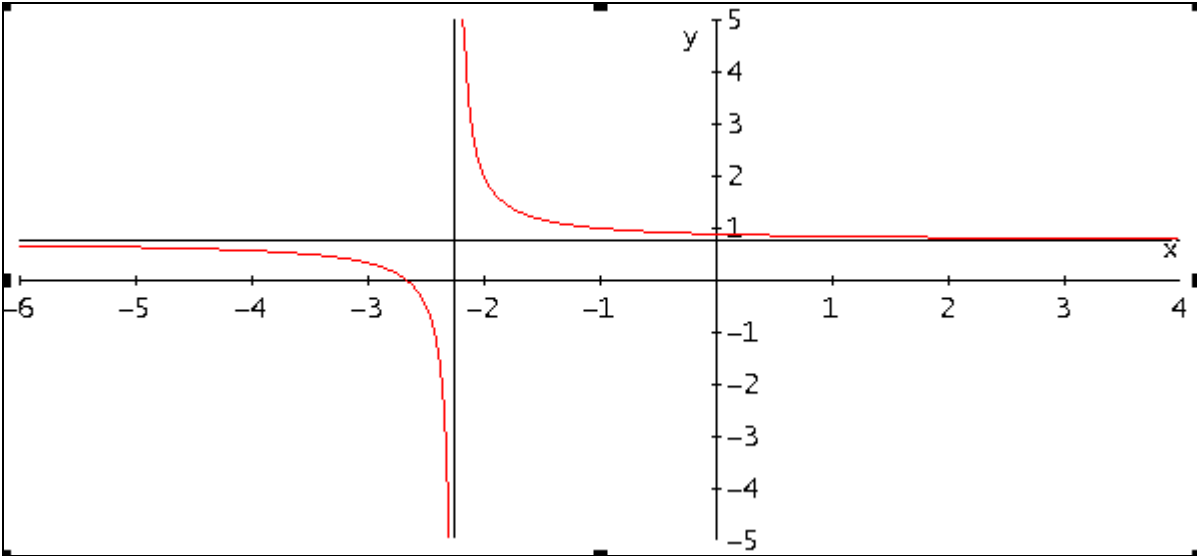


ANSWERS TO SEMESTER ONE EXAMINATION JUNE 2009 (MARCH 2009 INTAKE)

| | |
|----------|---|
| 1 | $\frac{343n^4 + 1078n^3 + 1099n^2 + 396n}{4}$ |
| 2 | PROVE |
| 3 | $81u^4 - 844u^3 + 3274u^2 - 5645u + 3700 = 0$ |
| 4 | <p>Asymptotes : $y = \frac{3}{4}$ and $x = \frac{-9}{4}$.</p> <p>There are no stationary points.</p> <p>The curve crosses the axes at points : $\left(0, \frac{8}{9}\right)$ and $\left(\frac{-8}{3}, 0\right)$</p>  <p>The graph shows a rational function plotted on a Cartesian coordinate system. The x-axis ranges from -6 to 4 with major ticks every 1 unit. The y-axis ranges from -5 to 5 with major ticks every 1 unit. A vertical asymptote is located at $x = -2.25$ (or $x = -9/4$), and a horizontal asymptote is located at $y = 0.75$ (or $y = 3/4$). The curve is red and consists of two branches. The left branch approaches the horizontal asymptote from below as $x \rightarrow -\infty$, crosses the x-axis at $x = -8/3 \approx -2.67$, and then approaches the vertical asymptote from the left. The right branch approaches the vertical asymptote from the right, crosses the y-axis at $y = 8/9 \approx 0.89$, and then approaches the horizontal asymptote from above as $x \rightarrow \infty$.</p> |