

KIX 1001: ENGINEERING MATHEMATICS 1

Tutorial 9: Engineering Applications of Integral

- 1) Find the arc length L of the curve $y = x^{3/2}$ from $x = 0$ to $x = 5$
- 2) Find the area bounded by the parabola $x = 8 + 2y - y^2$, the y -axis, and the lines $y = -1$ and $y = 3$
- 3) Find the arc length of the catenary $y = \frac{a}{2}(e^{x/a} + e^{-x/a})$ from $x = 0$ to $x = a$
- 4) Find the centroid of the plane area bounded by the parabolas $y = 2x - x^2$ and $y = 3x^2 - 6x$
- 5) Find the hydrostatic force on a circular plate of radius 2 that is submerged 6 meters in the water