

East Los Angeles College
Department of Mathematics
Math 262
Test 3

Integrate the following Improper Integrals

1. $\int_0^{\infty} x e^{-x} dx$

2. $\int_0^3 \frac{1}{\sqrt{9-x^2}} dx$

Use Simpson's Rule to Approximate the following Integral with $n = 6$

3. $\int_0^3 \sqrt{1+x^3} dx$

Calculate the arc length over the given interval.

4. $y = x^{3/2}$ over $1 \leq x \leq 2$

Calculate the surface area by revolving the following curve about the x-axis over the following interval.

5. $y = x^2$ over $0 \leq x \leq 1$

6. Determine the equation of the line tangent to the curve for the given parameter.

$$x = e^t$$

$$y = t$$

$$t = 1$$

7. Determine the interval for t in which the curve is concave up.

$$x = t^2$$

$$y = t^3 - 4t$$

8. Determine the arc length for the following parametric equation over the indicated interval.

$$x = 2t$$

$$y = 1 + t^{3/4}$$

$$0 \leq t \leq 4$$