

East Los Angeles College
Department of Mathematics
Math 262
Test 1 (Take Home)

Determine the equation of the line tangent to the curve at the indicated point for the following.

1. $y = e^{2x} \cos(\pi x)$ at $(0,1)$

2. $y = \ln(x^2 - 3x + 1)$ at $(3,0)$

Determine the domain, critical values, relative max and min, intervals of increasing and decreasing for the following curves.

3. $f(x) = \frac{e^x}{x^2}$

4. $y = \ln[\sin(x)]$

Determine the following limits

5. $\lim_{x \rightarrow \infty} [\ln(1 + x^2) - \ln(1 + x)]$

6. $\lim_{x \rightarrow \infty} \tan^{-1}(e^x)$

Integrate the following curves.

7. $\int_0^{\pi/2} \frac{\sin(x)}{1 + \cos^2(x)} dx$

8. $\int_0^1 \frac{1+x}{1+x^2} dx$

9. $\int \frac{1}{\sqrt{4-x^2}} dx$

10. $\int \frac{e^{2x}}{\sqrt{1-e^{4x}}} dx$