

**King Fahd University of Petroleum & Minerals**  
**Department of Mathematics and Statistics**  
**Semester (063)**  
**MATH 101**

**Exam II (PART 2)**  
(Essay Problems: Show all details)

Name: \_\_\_\_\_ ID: \_\_\_\_\_

Section: \_\_\_\_\_

Question #	Points obtained	Maximum points
1		5
2		5
3		5
Total		15

**Time allowed: (For Both Parts) 90 minutes**

**Date: 7<sup>th</sup> August 2007**

The use of calculators or mobile phones is not permitted

There are **3 questions** in this **part**. Check your paper now

Q.1. Find equation of both lines through the point (5,9) that are tangent to the parabola  $y = x^2$ .

<b>5 points</b>
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**Q.2.**

**5 points**

3

If  $\ln y = (x + y)^{\sin x}$ , find  $\frac{dy}{dx}$  at the point  $(0, e)$ .

**Q.3.**

Two cars start moving from the same point. One travels south at 3 mi/h and the other travels west at 4 mi/h. At what rate is the distance between the cars increasing one hour later?