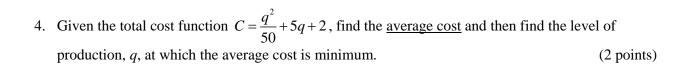
King Fahd University of Petroleum & Minerals Department of Mathematics and Statistics Math 132 - Second Major Exam December 4, 2007

First Semester 2007-2008 (071)

7:00 pm - 8:15 pm

Name :		ID #	ID #	
1.	Given the function $f(x) = x^3 - 3x^2 - 24x$, find the relative extrema of the function.	e interval on which the function is	ncreasing and the (2 points)	
2.	Discuss the concavity and find the inflection point	ts of the function $f(x) = e^x(x+4)$.	(2 points)	
3.	Evaluate $\int \frac{e^x}{1+e^x} dx$		(2 points)	



5. Use differentials to approximate $\sqrt{4.1}$ (2 points)

6. Find the area bounded by $y = x^2 - 2$ and y = x. (2 points)

7. Find the absolute extrema of
$$f(x) = 3x^4 - x^6$$
 on [-1,2].

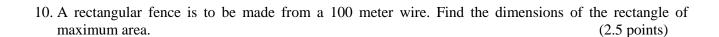
(2 points)

8. Evaluate
$$\int_{1}^{e} \ln x \, dx$$

(2 points)

9. If
$$f'(x) = \frac{1}{x} + 3$$
, $f(1) = 0$, find $f(e^2)$.

(2 points)



11. Sketch a graph of f(x) that has the following properties

(3.5 points)

Vertical Asymptotes:
$$x = 4, x = -2$$

$$f(x) \ge 0$$
 on $(-\infty, -2) \cup [0,3] \cup (4,\infty)$, $f(x) < 0$ elsewher

$$x-int.=0,3$$

$$y - int. = 0$$

R.Max. at(2,2)

R.Min. at
$$(-4,0)$$

Inflection Point s at (0,0) and (1,1)

Concave up on $(-\infty, -2) \cup (0,1) \cup (4,\infty)$, Concave down elsewhere

$$\lim_{x \to +\infty} f(x) = 3, \lim_{x \to -\infty} f(x) = +\infty$$

