Math 125C	First Midterm	Winter 2013
Your Name	Your Signature	
Ctudant ID //		
Student ID #	_	
		Yuanlong Chris
	Section (Thu.) 1	1:30 10:00 11:30 10:00
	(circle one)	CA CB CC CD

Problem	Total Points	Score
1	12	
2	8	
3	8	
4	12	
5	10	
Total	50	

- This exam is closed book. You may use one $8\frac{1}{2} \times 11$ sheet of notes.
- Graphing calculators are not allowed.
- Do not share notes.
- In order to receive credit, you must show your work. Do not do computations in your head. Instead, write them out on the exam paper.
- Place a box around **YOUR FINAL ANSWER** to each question.
- If you use a trial and error (or guess and check) method when an algebraic method is available, you will not receive full credit.
- If you need more room, use the backs of the pages and indicate to the reader that you have done so.
- Raise your hand if you have a question.

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1 (12 points)

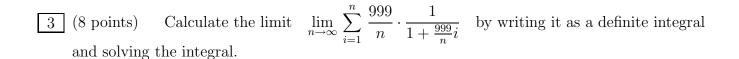
Compute the following integrals. Give your answers in exact form.

(a) (4 points)
$$\int_{1}^{4} \frac{\sqrt{z+3}}{z} dz$$

(b) (4 points)
$$\int_0^{\pi/4} \frac{\sin t}{\cos^3 t} dt$$

(c) (4 points)
$$\int \frac{x^2}{\sqrt{1-x^6}} dx$$

Math 125CFirst MidtermWinter 2013 $\boxed{2}$ (8 points)Let $f(x) = \int_{1}^{2x-1} 3t^2 + \ln(t) dt$. Find the equation of the tangent line to y = f(x)
at x = 1.



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4 (12 points) Tafu is driving his car along a stright street. The velocity of his car is given by $v(t) = 90t^2 - 50t$ mi/hr, where t is measured in hours. Tafu reaches his destination after one hour. The car can drive 35 miles per gallon of fuel. How much fuel did Tafu use up for this journey?

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5 (10 points) Let R be the region in the first quadrant bounded by $y = 6x - x^2$ and $y = x^3$. Set up an integral that computes the volume of the solid generated by rotating R around the line y = -3. DO NOT EVALUATE.