

Honors Math 182 Quiz 5 Version A

Feel free to use the computers, your calculator, notes and textbooks while working on this quiz. You may also use online resources such as Wikipedia, Google and Wolfram Alpha; however, do not use email or any other messaging service during the quiz.

1. Solve the following multiple-choice antiderivative problems:

(i) $\int 6 \cos(2x) \sin(x) dx$

- (A) $3 \cos x - \cos 3x + C$
- (B) $6 \cos x - 4 \cos^3 x + C$
- (C) $-2 \cos^3 x + C$
- (D) both (A) and (B)
- (E) both (A) and (C)

(ii) $\int |2x| dx$

- (A) $x^2 + C$
- (B) $x|x| + C$
- (C) $-x^2 + C$
- (D) $-x|x| + C$

2. Substitute $u = \ln x$ in the following integrals, but DO NOT SOLVE THEM!

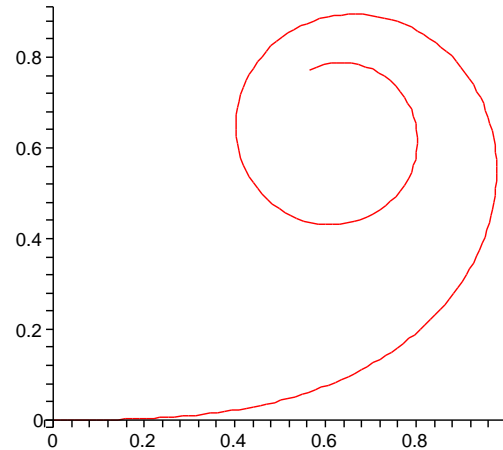
(i) $\int_1^2 \ln x dx$

(ii) $\int_1^e \arctan x dx$

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3. Let $C(t) = \int_0^t \cos(u^2) du$ and $S(t) = \int_0^t \sin(u^2) du$.

(i) Find the length of the curve given by $(C(t), S(t))$ where $0 \leq t \leq \pi$.



(ii) Find to 5 digits accuracy the area of the surface generated by revolving the curve $(C(t), S(t))$ where $0 \leq t \leq \pi$ about the x -axis.

(iii) Find to 5 digits accuracy the area of the surface generated by revolving the curve $(C(t), S(t))$ where $0 \leq t \leq \pi$ about the y -axis.