MA 126 — Spring 2017 — Prof. Clontz — Standard Assessment 1

Name: _____

- Each question is prefaced with a Standard for this course.
- When grading, each response will be marked as follows:
  - ✓: The response is demonstrates complete understanding of the Standard.
  - ⋆: The response may indicate full understanding of the Standard, but clarification or minor corrections are required.
  - ×: The response does not demonstrate complete understanding of the Standard.
- Only responses marked with a ✓ mark count toward your grade for the semester. Visit the course website for more information on how to improve ⋆ and × marks.
- This Assessment is due after 50 minutes. All blank responses will be marked with ×.

C01: This student is able to... Derive properties of the logarithmic and exponential functions from their definitions.	Mark: (Instructor Use Only)

Use the definition $\ln x = \int_1^x \frac{1}{t}\,dt$ to prove that $\ln(x/a) = \ln x - \ln a$ for all positive real numbers x and a.

C02: This student is able to... Prove hyperbolic function identities.	Mark: (Instructor Use Only)

Use the definitions

$$\sinh(x) = \frac{e^x - e^{-x}}{2}, \cosh(x) = \frac{e^x + e^{-x}}{2}$$

to prove the following identity.

$$\cosh^2(x) = 1 + \sinh^2(x)$$

S01: This student is able to... Find derivatives and integrals involving logrithmic and exponential functions.	Mark: (Instructor Use Only)

a) Find $\frac{d}{dy}[\ln(y^2+1)+e^{3y}]$.

b) Find $\int \left(\frac{e}{x}+e^x\right)\,dx$.

S02: This student is able to... Find derivatives and integrals involving hypberbolic functions.	Mark: (Instructor Use Only)

a) Find $\frac{d}{dx}[\cosh(2x-7)+\sinh(x^2)\,\mathrm{csch}(x^2)]$.

b) Find $\displaystyle\int 5\,\mathrm{sech}(t)\tanh(t)\,dt$.

Use this space if you need extra room for a problem: