

MATH-119  
WEEK 9  
RECITATION QUESTIONS

1. Find  $\lim_{x \rightarrow 2^-} e^{3/(2-x)}$ .
2. Differentiate the function  $y = e^{k \tan \sqrt{x}}$ .
3. Evaluate the integral  $\int \frac{e^{\sqrt{x}}}{\sqrt{x}} dx$
4. If  $f(x) = 3 + x + e^x$ , find  $(f^{-1})'(4)$ .
5. Solve the following equation for  $x$

$$2 \ln x = \ln 2 + \ln(3x - 4)$$

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6. Find  $\lim_{x \rightarrow \infty} [\ln(2+x) - \ln(1+x)]$ .
  7. Find  $y'$  if  $x^y = y^x$ .
  8. Find the absolute minimum value of the function  $f(x) = x \ln x$ .
  9. Evaluate the integral  $\int_e^6 \frac{dx}{x \ln x}$ .
  10. (If time permits) Find the volume of the solid obtained by rotating the region under the curve

$$y = \frac{1}{\sqrt{x+1}}$$

from 0 to 1 about the  $x$ -axis.