Your TA: _____   Seat #: ☐ – ☐

Math 105 TOPICS IN MATHEMATICS

QUIZ – IX (In-Class)

April 1 (Wed), 2015

Instructor: Yasuyuki Kachi

   Line #: 52920.

ID # : _____   Name : _____

[I] (2pts)   Fill in the boxes.

$$8^x \ = \ 5^{\boxed{}}. \qquad\qquad 13^x \ = \ e^{\boxed{}}.$$

[II] (2pts)   Fill in the boxes.

$$9 \ = \ 4^{\boxed{}} \ . \qquad\qquad 22 \ = \ e^{\boxed{}} \ .$$

[III] (2pts)   Write each of the following in the form

(a) $\dfrac{1}{\log_7 6} \ = \ \log_{\boxed{}} \boxed{}.$ (b) $\dfrac{1}{\log_{18} 31} \ = \ \log_{\boxed{}} \boxed{} \ .$

[IV] (4pts)   Simplify

(1) $\log_3 27 \ = \ \underline{}.$

(2) $\log_{10} 100000 \ = \ \underline{}.$

(3) $\log_5 \dfrac{1}{625} \ = \ \underline{}.$

(4) $\log_4 \dfrac{1}{1024} \ = \ \underline{}.$

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[V] (2pts)   Simplify

(1) $\log_5 5^{\sqrt{7}} = $ _____ .

(2) $e^{\ln 16} = $ _____ .

[VI] (2pts)   Fill in the boxes

(1) $\dfrac{\log_3 7}{\log_3 4} = \log_{\square} \boxed{}$.

(2) $\dfrac{\log_7 41}{\log_7 e} = \ln \boxed{}$.

[VII] (8pts)   (1) $\left(\ln 100 \right) - \left(\ln 20 \right) = \ln \boxed{}$.

(2) $2 \ln 3 = \ln \boxed{}$.

(3) $\ln 243 = \boxed{} \left(\ln 3 \right)$.

(4) $\ln \sqrt[5]{128} = \dfrac{\boxed{}}{\boxed{}} \left(\ln 2 \right)$.

(5)   Simplify: $e^{(\ln 4)+(\ln 11)} = $ _____ .

(6)   Simplify: $e^{3 \, (\ln 2)} = $ _____ .

(7)   Simplify: $\ln 8^{\frac{1}{\ln 8}} = $ _____ .

(8)   Simplify: $8^{\frac{1}{\ln 8}} = $ _____ .

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