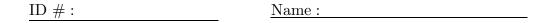
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## Math 105 TOPICS IN MATHEMATICS QUIZ – VIII (In-Class)

March 27 (Fri), 2015 **Instructor:** Yasuvuki Kachi Line #: 52920. <u>Name :</u> ID # : [I] (4pts) Convert each of the following expression of numbers in the binary system back into the usual decimal system. 1001. (d) 1111111 (seven straight 1s). (a)11. (b) 110. (c)Answers ]: (a) (b) (c) (d) [II] (3pts) Convert each of the following expressions of numbers in the usual decimal system into the binary system. (a)5.(b) 12.(c)35. **[Answers**]: (a) (b)(c)

[III] (3pts) Convert each of the following expression of numbers in the hexadecimal system back into the usual decimal system.

(a) C. (b) 1B. (c) A5.



[IV] (3pts) Convert each of the following expressions of numbers in the usual decimal system into the hexadecimal system.

(a) 16. (b) 28. (c)  $16^4 - 1$ .

[<u>Answers</u>]: (a) (b) (c)

[V] (3pts) Simplify:

(1) 
$$3^x \cdot 8^x =$$
 (2)  $a^{\frac{1}{3}} \cdot a^{\frac{5}{3}} =$ 

$$(3) \qquad \left(a^{\sqrt{3}}\right)^{\sqrt{12}} =$$

[VI] (2pts) Find the limits:

(1) 
$$\lim_{n \to \infty} \left(1 + \frac{8}{n}\right)^n =$$
 (2)  $\lim_{n \to \infty} \left(1 - \frac{1}{2n}\right)^n =$ 

[VII] (3pts) Identify the following infinite sum (the answer is an *e*-to-the-power):

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$$1 + \frac{1}{1!} \cdot 3 + \frac{1}{2!} \cdot 3^2 + \frac{1}{3!} \cdot 3^3 + \frac{1}{4!} \cdot 3^4 + \frac{1}{5!} \cdot 3^5 + \dots = \underline{\qquad}$$