[I] (4pts) Convert each of the following expressions of numbers in the binary system back into the usual decimal system.

(a) 11.  (b) 110.  (c) 1001.  (d) 111111 (seven straight 1s).

[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.

[Answers]: (a) _____  (b) _____  (c) 1
[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.

[Answers]: (a) [Blank]  
(b) [Blank]  
(c) [Blank]

[V] (3pts) Simplify:

(1) \(3^x \cdot 8^x = \) ________.
(2) \(\frac{1}{a^3} \cdot \frac{5}{a^3} = \) ________.
(3) \((a^{\sqrt{3}})^{\sqrt{12}} = \) ________.

[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):

\[1 + \frac{1}{1!} \cdot 3 + \frac{1}{2!} \cdot 3^2 + \frac{1}{3!} \cdot 3^3 + \frac{1}{4!} \cdot 3^4 + \frac{1}{5!} \cdot 3^5 + \ldots = \] ________.