

**Math 156 Test Ch 1 – 2**

**Name** \_\_\_\_\_

Show your work to receive full credit. Each answer is worth 4 points unless otherwise noted.

I. Explain the difference between a number and a numeral. Give examples. (6 points)

II. Give five reasons why the Hindu-Arabic system has become the system of numeration used throughout the world. (5 points)

III. Represent the Hindu-Arabic numeral, 1966, in each of the following systems:

- |                |                |
|----------------|----------------|
| 1. Egyptian    | 2. Roman       |
| 3. Ionic Greek | 4. Attic Greek |
| 5. Chinese     | 6. Mayan       |
| 7. Babylonian  | 8. Base 5      |

IV. The binary numeral, 111 101 011, into octal (base 8) and hexadecimal (base 16).

V. From the list following select all those that are: (15 pts total)

$$\left\{ -7.45, -\sqrt{36}, \sqrt{-36}, -1\frac{2}{3}, 0, 1, 2, 3.14, \pi, \sqrt{77}, 19 \right\}$$

- |               |              |
|---------------|--------------|
| 1. real       | 2. imaginary |
| 3. integers   | 4. rational  |
| 5. irrational | 6. prime     |

VII. What is logic? Explain the difference between induction and deductive logic. (5 points)

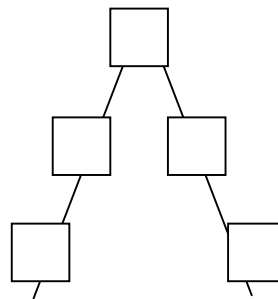
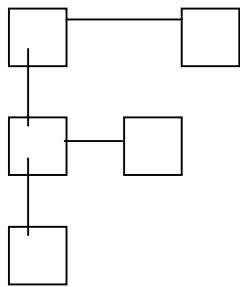
VIII. “If you win a medal in the Winter Olympics, you are a great athlete.

John is a great athlete.

Therefore, John won a medal in the Winter Olympics.

- a) What error does this argument have?  
b) Change the second and third statements to make a correct argument.

IX. In the squares below place the consecutive whole numbers, 1, 2, 3, 4, 5, so that the sum of the numbers on each segment is the same.



X. Solve the alphametic.

$$\begin{array}{r} M \quad O \quad O \\ + \quad M \quad O \quad O \\ \hline C \quad O \quad W \quad S \end{array}$$

***Extra Credit***

Using the digits 1944 (my birth year) and the operations of addition, subtraction, multiplication, division, powers, square roots, factorials and parentheses, find problems that give the following answers:

$$17 = \underline{\hspace{2cm}} \quad 24 = \underline{\hspace{2cm}} \quad 31 = \underline{\hspace{2cm}}$$