Assignment 0

The following problems were derived from an assignment in a course in discrete mathematics.

Problem 1

1. Let \( y = \log_{10} x \). Find the inverse of this function.

2. \( \int \log_{2} x \, dx \) becomes equal to:
   a. \( x \log_{2} x + c \)
   b. \( \frac{x}{2} + c \)
   c. \( \frac{x^2}{2} + c \)
   d. \( x \log_{2} x - \log_{2} x + c \)

Problem 2

3. Write the equation of a circle with center at (2, 3) and radius 4.

4. Write the equation of a circle with center at (0, 0) and radius 5.

Problem 3

5. A 3D object in 3D space can have a maximum of:
   a. 12 degrees of freedom
   b. 9 degrees of freedom
   c. 6 degrees of freedom
   d. 1 degree of freedom

Problem 4

6. The device used to measuring device is setting both:
   a. Sensitivity
   b. Accuracy
   c. Reliability
   d. Linearity

Problem 5

7. Which of the following statements is true?
   a. Mean of a set of numbers is always a positive quantity.
   b. Median of a set of numbers is always a positive quantity.
   c. Standard deviation of a set of numbers is always a positive quantity.
   d. Variance of a set of numbers is always a positive quantity.

Problem 6

8. The decimal code corresponding to the binary number (10100110) is equal to:
   a. 48
   b. 42
   c. 32
   d. 62

Problem 7

9. This container is used to store any substance that can be used to realize joining type. It should be:
   a. Resin
   b. Metal
   c. Plastic
   d. Paper

Problem 8

10. The TRACE of the matrix \( A \) is equal to:
    a. 3
    b. 4
    c. 5
    d. 6