

1. Define the term algorithm as it pertains to computer science.
2. What is a programming language? Name at least three programming languages.
3. What is an identifier?
4. What is a variable?
5. What is a counter?
6. What is a flowchart?
7. What is a pseudo code?
8. Create a task list, i.e. a list of steps, to calculate and display the batting average of a baseball player, using the following formula:

$$\text{Batting average} = \text{number of hits} / \text{number of times at bat} * 100$$

9. Create a task list to calculate and display the value of an investment of \$10,000 after 10 years, placed at 6% interest, compounded annually. A formula for calculating the value of an investment compounded annually is:

$$\text{Final Value} = \text{Original Investment} \times (1 + \text{interest rate})^{\text{number of years}}$$

10. Select “legal” variable names from the following list:
  - a. Pi
  - b. ?
  - c. Months is a year
  - d. X
  - e. 768.95
  - f. Net pay

11. Assign variable names to each of the following:

- a. The radius of a circle
- b. Name for the height of a triangle
- c. Total deductions from an employee's pay A name for a picture of a clown
- d. The tax form 1040A name for a picture of a clown
- e. The tax form 1040

12. What is a counter? Give an example.

13. State the value of a variable named count after each step in the following algorithm; also state when the algorithm is finished:

- a. Counter is set to zero
- b. Counter is incremented by one
- c. Repeat Step B until the variable count is equal to the value 5

14. What does each of the following mean?

- a.  $\text{total} = \text{total} + \text{monthly income}$
- b.  $\text{square} = \text{number} * \text{number}$ . If number has the value 3, what is the value of square?
- c.  $\text{sum} = \text{total} + \text{square}$