1. Variables are used to store information and are essentially containers. They can be defined by a name, a type, and a value. They are called variables because their value isn’t set and can be changed (reassignment).

2. Variables are used to ask questions and solve problems with data that is input, usually by a user. Since variables can have their value changed, they allow for flexibility when data changes

3. Input is the data being entered into a computer, and output is the end result once the data has gone through whatever processes and conditions are set.

4. We use I/O because data must have a start point and an end point. As computers can only do what they are instructed to do, everything must be clearly defined and have an order of operations that is consistent with how computers process information.

5. If Statements allow us to set conditions that instruct a computer to perform an operation if a specified condition is met, and if the condition is not met, to either stop or do something else.

6. Computers can’t make decisions on their own, so must receive data that has clearly defined parameters set for them. Instructions must be given on what to do when conditions are met and what to do when they are not met, otherwise the computer will be unable to function.

7. Loops are conditional statements built into a program that give a set of instructions to the computer. They are used to tell the computer what to do when there are repeated instructions in a sequence and instruct the computer to perform that action a specific number of times, or until a specific condition is met.

8. Loops allow the programmer to avoid unnecessary repetition of instructions when writing code. Instead of writing out code 100x or 1000x, a loop can be created that will run a certain number of times, or until a specified condition is no longer met.

9. For loops, or counter-based loops, are used for counting and to specify for a program to run a certain number of times.

While loops, or condition-based loops, will continue to execute until a specified condition is no longer met, which involves a true/false question.

10.

1. Start program
2. Set A=12
3. Set B=3
4. Calc A+B==15
5. Print 15
6. Calc A-B==9
7. Print 9
8. Calc A\*B==36
9. Print 36
10. Calc A/B==4
11. Print 4
12. End Program

11.

1) Start program

2) FirstName=UserInput()

3) LastName=UserInput()

4) Age=UserInput()

5) Occupation=UserInput()

6) Print (“Hi! My name is”) + FirstName + LastName + “, I am a” + age + occupation

12.

Case #1: Inputs 5, 7 Output: 36

Case #2: Inputs 12, 2 Output 6

Case #3: Inputs 5, 6 Output 11

Case #4: Inputs 12, 3 Output 9

1) Start program

2) UserInput 1=A

3) UserInput 2=B

3) If (A and B are both odd)

4) Product=A\*B

5) Print (product of) A\*B

6) Else if (A and B are both even)

7) Quotient=A/B

8) Print (quotient of) A/B

9) Else if (A is odd and B is even)

10) Sum=A+B

11) Print (sum of) A+B

12) Else (A is even and B is odd)

13) Difference=A-B

14) Print (difference of) A-B

15) End program

13.

14. F

15. T

16. F

17. F

18. F…although this is my natural reaction

19. F

20. T