1. What is the value of the variable, S, after the execution of the following loops? (You must show work to justify your answer.)

   a. \( S = 0 \)
      \( \text{For } J = 1 \text{ to } 10 \text{ Step } 3 \)
      \( S = S + J \)
      \( \text{Next } J \)
      \( \text{MsgBox}(S) \)

      The Message box would show S as: ________________

   b. \( S = 0 \)
      \( \text{For } K = 3 \text{ to } 9 \)
      \( \text{For } M = 1 \text{ to } 8 \text{ Step } 2 \)
      \( S = S + 1 \)
      \( \text{Next } M \)
      \( \text{Next } K \)
      \( \text{MsgBox}(S) \)

      The Message box would show S as: ________________

   c. \( S = 0 \)
      \( \text{For } L = 8 \text{ to } 3 \text{ Step } 2 \)
      \( S = S + 1 \)
      \( \text{Next } L \)
      \( \text{MsgBox}(S) \)

      The Message box would show S as: ________________

   d. \( J = 3 \)
      \( S = 0 \)
      \( \text{Do } \)
      \( \text{X} = 4 \times J \)
      \( \text{If } J \geq 40 \text{ Then Exit Do } \)
      \( S = S + 2 \times X \)
      \( J = J + J^2 \)
      \( \text{Loop } \)
      \( \text{MsgBox}(S) \)

      The Message box would show S as: ________________
2. Before writing the program, try to put the situation described into a quick flow diagram, and then identify the number of loops, if statements, and variables to be used.

To start each day a person wakes up and flips a coin. They flip the coin until they get a tails, recording the number of flips it takes. If they flip the coin more than 17 times by Friday they will treat themselves to a pizza. If not they will just eat noodles. Hint: The week starts on Sunday. Count the flips made Friday morning.