

**FLOWCHART QUESTION 1**

- 1-1. No, because it does not flow from a decision diamond.  
This is an example of an opportunity for better flowchart design.  
You can insert a decision diamond with the question, "Did you shake your spouse 3 times yet?" and then point (a) would represent a proper loop.
- 1-2. There is 1 loop. Not all decision diamonds produce a loop; most of them go down alternate paths instead looping back.
- 1-3. "Is it dark?"
- 1-4. Turn on the light.
- 1-5. No. All decision questions should be YES/NO questions.
- 1-6. (d)
- 1-7. Walk to the car
- 1-8. Zero times
- 1-9. Twice

**FLOWCHART QUESTION 2:**

	i0	i1	i2	i3	i4
A	0	1	4	9	16
B	1	3	5	7	9
C	2	2	2	2	2
TEST	N	N	N	N	Y

- 2-1. uninitialized. could be unknown, zero, or even something random leftover from previous processing
- 2-2. A = 16, B = 9, C = 2
- 2-3. Five times
- 2-4. OUTPUT = 16 9 2

**FLOWCHART QUESTION 3:**

	i0	i1
A	5	5
B	2	2
C	100	0
D	0	50
Q1	N	N
Q2	-	N

OUTPUT: 0, 0 5

- 3-1. Two times
- 3-2. Zero
- 3-3. Yes
- 3-4. Zero

**FLOWCHART QUESTION 4:**

- 4-1. number (count) of pennies collected AS WELL AS amount of money collected in pennies
- 4-2. number (count) of nickels collected
- 4-3. C = 103 {{{ This is a tricky one! }}}  
We know that a nickel must be the last coin that brings the total over 100.  
This means that the 26 coins before the nickel must total 100 or less.  
Look for the combination of 26 coins that is as close to 100 as possible without going over.  
26 Nickels = 130 = too much  
20 Nickels, 6 Pennies = 106 = too much, but just barely  
18 Nickels, 8 Pennies = 98 = just right  
Now we know that the first 26 coins add up to 98 cents.  
When we add the final nickel, we find that the total for the 27 coins must be 103.