

# Answers 4

1. Trace the following program by hand. Write its output.

Answer: 0 15 30 45 60 75 90

2. Describe with one sentence in your own words what the program above does.

Answer: It prints integers from 0 to 99 that are divisible by 15 (divisible by 3 and 5).

3. Trace the following program by hand. Write its output.

Answer: 0 1 1 2 3 5 8 13 21 34 55

4. (Optional Challenge) What is the sequence of numbers printed by the program above called?

Answer: The Fibonacci Sequence.

5. Trace the following program by hand. Write its output.

Answer:

```
1 Helsinki, Finland
2 Moscow, Russia or Canada
3 Harbin, China or U.S.
4 Anchorage, China or U.S.
5 Toronto, Russia or Canada
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6. Use the following Python program to create a truth table for the XOR (exclusive OR) operator.

XOR

	a=0	a=1
b=0	0	1
b=1	1	0

7. What is the output of the following program?

Answer: [1, 2, 300, 400, 500, 6, 7, 8]

8. Say that we want a data structure which is fast at inserting new elements at the start and end of a sequence.

What data structure should we use?

Answer: linked-list

9. Say that we want a data structure which is fast at accessing an element at any position in a sequence, but is also flexible in size.

What data structure should we use?

Answer: array-list