1806ICT Programming Fundamentals

Booleans and if

1. Given two temperatures, print 1 if one is less than 0 and the other is greater than 100.

Input	Output
120 1	0
1 120	0
-2 120	1

2. We'll say that a number is "teen" if it is in the range 13 ..19 inclusive. Given 3 integer values, print 1 if one or more of them are teen.

Input	Output
13 20 10	1
20 19 10	1
20 10 12	0

3. Write C code that reads two integers from the keyboard. Given two inclusive ranges -8..-4 and 10..16 print 1 if both integers are in one of these ranges or both integers are not in these ranges. Otherwise print 0. All ranges are inclusive

Input	Output
10 50	0
-6 11	1
100 20	1
5 20	1
5 12	0
10 0	0

4. Given three ints, a b c, print 1 if b is greater than a, and c is greater than b. However, with the exception that if the 4th int is 1, b does not need to be greater than a.

Input	Output
1 2 4 0	1
1 2 1 0	0
1 1 2 1	1

5. Given 3 numbers, print the largest.

Input	Output
3 2 1	3
1 2 3	3
3 3 3	3

6. You are driving a little too fast, and a police officer stops you. Write code to compute

the result, encoded as an int value: 0=no ticket, 1=small ticket, 2=big ticket. If speed is 60 or less, the result is 0. If speed is between 61 and 80 inclusive, the result is 1. If speed is 81 or more, the result is 2. Unless it is your birthday -- on that day, your speed can be 5 higher in all cases.

Input	Output
60 0	0
65 0	1
65 1	0

7. Given a day of the week encoded as 0=Sun, 1=Mon, 2=Tue,. ..6=Sat, and an int indicating if we are on vacation, print a string of the form "7:00" indicating when the alarm clock should ring. Weekdays, the alarm should be "7:00" and on the weekend it should be "10:00". Unless we are on vacation -- then on weekdays it should be "10:00" and weekends it should be "off".

Input	Output
1 0	7:00
0 0	10:00
0 1	off
5 1	10:00

8. Given three ints, a b c, one of them is small, one is medium and one is large. Print 1 if the three values are evenly spaced, so the difference between small and medium is the same as the difference between medium and large.

Input	Output
2 4 6	1
4 6 2	1
4 6 3	0

9. Given the user input of a point (x, y) and a circle (x, y, r), display whether the point is inside the circle.

Iterations

10. Given a user input of a positive integer number, write a program that computes the sum of the digits of the given integer.

Sample run:

Input	Output
2155	13
12345	15

11. Given an input consisting of a set of integer numbers, write a program that prints out the largest number. Your program must check for valid input.

Sample run:

Input	Output
11 25 43	43
-2 -5 -10	-2
0	0
	No valid numbers were input
Apple	No valid numbers were input

12. Given inputs of three integers, sort them in ascending order.

Sample run:

Input	Output
1 2 3	1 2 3
3 5 1	1 3 5

13. A palindrome is a number or a text phrase that reads the same backwards as well as forwards. Examples of palindromes are 123321, 1234321, 55555, 22, 454, 1, 0. Write a program that reads in a positive integer number, and prints out whether or not that number is a palindrome.