Controlling Iteration

Break

1. What is the output of the following program? Explain.
   ```
   for x in range(10):
       print(3*x)
       if x == 6:
           break
   ```
2. What is the purpose of the following program? What is the output when $n = 200$? Can you find any values for which the program does not produce any output? Why would this occur?
   ```
   n = int(input("Positive integer: "))
   for c in range(n):
       if c*c >= n:
           print(c*c)
           break
   ```

Terminating For Loops Early

3. Write a program that asks the user if s/he would like to generate a random letter from the English alphabet. If the user enters "yes", generate the letter. Do this up to 20 times. If the user enters any other input (e.g. "no", "asdf"), stop the program.
4. Write a program that generates up to 1 000 random integers between 1 and 10 (displaying each one), but stops after three 7s have been generated.
5. Ask the user to enter a positive integer, *n*, then ask him/her to enter *n* positive integers (one at a time), and find their sum. If the user enters a negative value, stop the program and display an error message instead.
6. *Guess the Number*: Write a program that generates a random integer between 1 and 100, and asks the user to guess the value within 10 attempts. If the user correctly guesses the number, the program should stop and display a congratulatory message. Otherwise, the player is told whether their guess was "too high" or "too low". If the number is not guessed within 10 attempts, a consolation message should be displayed. Can you determine an efficient method of guessing the number in at most 7 guesses?
7. *Seven/Eleven*: A game is played where the player rolls two dice. If the sum of the dice is neither seven nor eleven, the player is awarded a number of points equal to the larger of the two values rolled. The player has up to 10 rolls to accumulate points; however, if the sum is either seven or eleven, the player loses all his/her points. The player can choose to stop at any point, keeping his/her points from previous rounds. Write a program that plays *Seven/Eleven*. Output the values of the rolls and the current score each round, and the final score (possibly zero) when the game ends.