

**Problem 1:**

```
def bottle_verse_special(verse_number):
    if verse_number == 2:
        print "2 bottles of beer on the wall, 2 bottles of beer."
        print "Take one down and pass it around, 1 bottle of beer on the wall."
    elif verse_number == 1:
        print "1 bottle of beer on the wall, 1 bottle of beer."
        print "Take one down and pass it around, no more bottles of beer on the wall."
    elif verse_number == 0:
        print "No more bottles of beer on the wall, no more bottles of beer."
        print "Go to the store and buy some more, 99 bottles of beer on the wall."

def bottle_verse(verse_number):
    if verse_number > 2:
        print verse_number, "bottles of beer on the wall,", verse_number, \
            "bottles of beer."
        print "Take one down and pass it around,", verse_number - 1, "bottles of " \
            "beer on the wall."
    else:
        bottle_verse_special(verse_number)

for i in range(99, -1, -1):
    bottle_verse(i)
    print
```

99 bottles of beer on the wall, 99 bottles of beer.  
Take one down and pass it around, 98 bottles of beer on the wall.

98 bottles of beer on the wall, 98 bottles of beer.  
Take one down and pass it around, 97 bottles of beer on the wall.

97 bottles of beer on the wall, 97 bottles of beer.  
Take one down and pass it around, 96 bottles of beer on the wall.

96 bottles of beer on the wall, 96 bottles of beer.  
Take one down and pass it around, 95 bottles of beer on the wall.

95 bottles of beer on the wall, 95 bottles of beer.  
Take one down and pass it around, 94 bottles of beer on the wall.

94 bottles of beer on the wall, 94 bottles of beer.  
Take one down and pass it around, 93 bottles of beer on the wall.

93 bottles of beer on the wall, 93 bottles of beer.  
Take one down and pass it around, 92 bottles of beer on the wall.

92 bottles of beer on the wall, 92 bottles of beer.  
Take one down and pass it around, 91 bottles of beer on the wall.

91 bottles of beer on the wall, 91 bottles of beer.  
Take one down and pass it around, 90 bottles of beer on the wall.

90 bottles of beer on the wall, 90 bottles of beer.

Take one down and pass it around, 89 bottles of beer on the wall.

89 bottles of beer on the wall, 89 bottles of beer.

Take one down and pass it around, 88 bottles of beer on the wall.

88 bottles of beer on the wall, 88 bottles of beer.

Take one down and pass it around, 87 bottles of beer on the wall.

87 bottles of beer on the wall, 87 bottles of beer.

Take one down and pass it around, 86 bottles of beer on the wall.

86 bottles of beer on the wall, 86 bottles of beer.

Take one down and pass it around, 85 bottles of beer on the wall.

85 bottles of beer on the wall, 85 bottles of beer.

Take one down and pass it around, 84 bottles of beer on the wall.

84 bottles of beer on the wall, 84 bottles of beer.

Take one down and pass it around, 83 bottles of beer on the wall.

83 bottles of beer on the wall, 83 bottles of beer.

Take one down and pass it around, 82 bottles of beer on the wall.

82 bottles of beer on the wall, 82 bottles of beer.

Take one down and pass it around, 81 bottles of beer on the wall.

81 bottles of beer on the wall, 81 bottles of beer.

Take one down and pass it around, 80 bottles of beer on the wall.

80 bottles of beer on the wall, 80 bottles of beer.

Take one down and pass it around, 79 bottles of beer on the wall.

79 bottles of beer on the wall, 79 bottles of beer.

Take one down and pass it around, 78 bottles of beer on the wall.

78 bottles of beer on the wall, 78 bottles of beer.

Take one down and pass it around, 77 bottles of beer on the wall.

77 bottles of beer on the wall, 77 bottles of beer.

Take one down and pass it around, 76 bottles of beer on the wall.

76 bottles of beer on the wall, 76 bottles of beer.

Take one down and pass it around, 75 bottles of beer on the wall.

75 bottles of beer on the wall, 75 bottles of beer.

Take one down and pass it around, 74 bottles of beer on the wall.

74 bottles of beer on the wall, 74 bottles of beer.

Take one down and pass it around, 73 bottles of beer on the wall.

73 bottles of beer on the wall, 73 bottles of beer.

Take one down and pass it around, 72 bottles of beer on the wall.

72 bottles of beer on the wall, 72 bottles of beer.

Take one down and pass it around, 71 bottles of beer on the wall.

71 bottles of beer on the wall, 71 bottles of beer.  
Take one down and pass it around, 70 bottles of beer on the wall.

70 bottles of beer on the wall, 70 bottles of beer.  
Take one down and pass it around, 69 bottles of beer on the wall.

69 bottles of beer on the wall, 69 bottles of beer.  
Take one down and pass it around, 68 bottles of beer on the wall.

68 bottles of beer on the wall, 68 bottles of beer.  
Take one down and pass it around, 67 bottles of beer on the wall.

67 bottles of beer on the wall, 67 bottles of beer.  
Take one down and pass it around, 66 bottles of beer on the wall.

66 bottles of beer on the wall, 66 bottles of beer.  
Take one down and pass it around, 65 bottles of beer on the wall.

65 bottles of beer on the wall, 65 bottles of beer.  
Take one down and pass it around, 64 bottles of beer on the wall.

64 bottles of beer on the wall, 64 bottles of beer.  
Take one down and pass it around, 63 bottles of beer on the wall.

63 bottles of beer on the wall, 63 bottles of beer.  
Take one down and pass it around, 62 bottles of beer on the wall.

62 bottles of beer on the wall, 62 bottles of beer.  
Take one down and pass it around, 61 bottles of beer on the wall.

61 bottles of beer on the wall, 61 bottles of beer.  
Take one down and pass it around, 60 bottles of beer on the wall.

60 bottles of beer on the wall, 60 bottles of beer.  
Take one down and pass it around, 59 bottles of beer on the wall.

59 bottles of beer on the wall, 59 bottles of beer.  
Take one down and pass it around, 58 bottles of beer on the wall.

58 bottles of beer on the wall, 58 bottles of beer.  
Take one down and pass it around, 57 bottles of beer on the wall.

57 bottles of beer on the wall, 57 bottles of beer.  
Take one down and pass it around, 56 bottles of beer on the wall.

56 bottles of beer on the wall, 56 bottles of beer.  
Take one down and pass it around, 55 bottles of beer on the wall.

55 bottles of beer on the wall, 55 bottles of beer.  
Take one down and pass it around, 54 bottles of beer on the wall.

54 bottles of beer on the wall, 54 bottles of beer.  
Take one down and pass it around, 53 bottles of beer on the wall.

53 bottles of beer on the wall, 53 bottles of beer.  
Take one down and pass it around, 52 bottles of beer on the wall.

52 bottles of beer on the wall, 52 bottles of beer.  
Take one down and pass it around, 51 bottles of beer on the wall.

51 bottles of beer on the wall, 51 bottles of beer.  
Take one down and pass it around, 50 bottles of beer on the wall.

50 bottles of beer on the wall, 50 bottles of beer.  
Take one down and pass it around, 49 bottles of beer on the wall.

49 bottles of beer on the wall, 49 bottles of beer.  
Take one down and pass it around, 48 bottles of beer on the wall.

48 bottles of beer on the wall, 48 bottles of beer.  
Take one down and pass it around, 47 bottles of beer on the wall.

47 bottles of beer on the wall, 47 bottles of beer.  
Take one down and pass it around, 46 bottles of beer on the wall.

46 bottles of beer on the wall, 46 bottles of beer.  
Take one down and pass it around, 45 bottles of beer on the wall.

45 bottles of beer on the wall, 45 bottles of beer.  
Take one down and pass it around, 44 bottles of beer on the wall.

44 bottles of beer on the wall, 44 bottles of beer.  
Take one down and pass it around, 43 bottles of beer on the wall.

43 bottles of beer on the wall, 43 bottles of beer.  
Take one down and pass it around, 42 bottles of beer on the wall.

42 bottles of beer on the wall, 42 bottles of beer.  
Take one down and pass it around, 41 bottles of beer on the wall.

41 bottles of beer on the wall, 41 bottles of beer.  
Take one down and pass it around, 40 bottles of beer on the wall.

40 bottles of beer on the wall, 40 bottles of beer.  
Take one down and pass it around, 39 bottles of beer on the wall.

39 bottles of beer on the wall, 39 bottles of beer.  
Take one down and pass it around, 38 bottles of beer on the wall.

38 bottles of beer on the wall, 38 bottles of beer.  
Take one down and pass it around, 37 bottles of beer on the wall.

37 bottles of beer on the wall, 37 bottles of beer.  
Take one down and pass it around, 36 bottles of beer on the wall.

36 bottles of beer on the wall, 36 bottles of beer.  
Take one down and pass it around, 35 bottles of beer on the wall.

35 bottles of beer on the wall, 35 bottles of beer.

Take one down and pass it around, 34 bottles of beer on the wall.

34 bottles of beer on the wall, 34 bottles of beer.

Take one down and pass it around, 33 bottles of beer on the wall.

33 bottles of beer on the wall, 33 bottles of beer.

Take one down and pass it around, 32 bottles of beer on the wall.

32 bottles of beer on the wall, 32 bottles of beer.

Take one down and pass it around, 31 bottles of beer on the wall.

31 bottles of beer on the wall, 31 bottles of beer.

Take one down and pass it around, 30 bottles of beer on the wall.

30 bottles of beer on the wall, 30 bottles of beer.

Take one down and pass it around, 29 bottles of beer on the wall.

29 bottles of beer on the wall, 29 bottles of beer.

Take one down and pass it around, 28 bottles of beer on the wall.

28 bottles of beer on the wall, 28 bottles of beer.

Take one down and pass it around, 27 bottles of beer on the wall.

27 bottles of beer on the wall, 27 bottles of beer.

Take one down and pass it around, 26 bottles of beer on the wall.

26 bottles of beer on the wall, 26 bottles of beer.

Take one down and pass it around, 25 bottles of beer on the wall.

25 bottles of beer on the wall, 25 bottles of beer.

Take one down and pass it around, 24 bottles of beer on the wall.

24 bottles of beer on the wall, 24 bottles of beer.

Take one down and pass it around, 23 bottles of beer on the wall.

23 bottles of beer on the wall, 23 bottles of beer.

Take one down and pass it around, 22 bottles of beer on the wall.

22 bottles of beer on the wall, 22 bottles of beer.

Take one down and pass it around, 21 bottles of beer on the wall.

21 bottles of beer on the wall, 21 bottles of beer.

Take one down and pass it around, 20 bottles of beer on the wall.

20 bottles of beer on the wall, 20 bottles of beer.

Take one down and pass it around, 19 bottles of beer on the wall.

19 bottles of beer on the wall, 19 bottles of beer.

Take one down and pass it around, 18 bottles of beer on the wall.

18 bottles of beer on the wall, 18 bottles of beer.

Take one down and pass it around, 17 bottles of beer on the wall.

17 bottles of beer on the wall, 17 bottles of beer.

Take one down and pass it around, 16 bottles of beer on the wall.

16 bottles of beer on the wall, 16 bottles of beer.  
Take one down and pass it around, 15 bottles of beer on the wall.

15 bottles of beer on the wall, 15 bottles of beer.  
Take one down and pass it around, 14 bottles of beer on the wall.

14 bottles of beer on the wall, 14 bottles of beer.  
Take one down and pass it around, 13 bottles of beer on the wall.

13 bottles of beer on the wall, 13 bottles of beer.  
Take one down and pass it around, 12 bottles of beer on the wall.

12 bottles of beer on the wall, 12 bottles of beer.  
Take one down and pass it around, 11 bottles of beer on the wall.

11 bottles of beer on the wall, 11 bottles of beer.  
Take one down and pass it around, 10 bottles of beer on the wall.

10 bottles of beer on the wall, 10 bottles of beer.  
Take one down and pass it around, 9 bottles of beer on the wall.

9 bottles of beer on the wall, 9 bottles of beer.  
Take one down and pass it around, 8 bottles of beer on the wall.

8 bottles of beer on the wall, 8 bottles of beer.  
Take one down and pass it around, 7 bottles of beer on the wall.

7 bottles of beer on the wall, 7 bottles of beer.  
Take one down and pass it around, 6 bottles of beer on the wall.

6 bottles of beer on the wall, 6 bottles of beer.  
Take one down and pass it around, 5 bottles of beer on the wall.

5 bottles of beer on the wall, 5 bottles of beer.  
Take one down and pass it around, 4 bottles of beer on the wall.

4 bottles of beer on the wall, 4 bottles of beer.  
Take one down and pass it around, 3 bottles of beer on the wall.

3 bottles of beer on the wall, 3 bottles of beer.  
Take one down and pass it around, 2 bottles of beer on the wall.

2 bottles of beer on the wall, 2 bottles of beer.  
Take one down and pass it around, 1 bottle of beer on the wall.

1 bottle of beer on the wall, 1 bottle of beer.  
Take one down and pass it around, no more bottles of beer on the wall.

No more bottles of beer on the wall, no more bottles of beer.  
Go to the store and buy some more, 99 bottles of beer on the wall.

## Problem 2:

```
def bottle_verse_special(verse_number):
    if verse_number == 2:
        print "Two bottles of beer on the wall, two bottles of beer."
        print "Take one down and pass it around, one bottle of beer on the wall."
    elif verse_number == 1:
        print "One bottle of beer on the wall, one bottle of beer."
        print "Take one down and pass it around, no more bottles of beer on the wall."
    elif verse_number == 0:
        print "No more bottles of beer on the wall, no more bottles of beer."
        print "Go to the store and buy some more, ninety-nine bottles of beer on the wall."

# Converts numbers to their English form by setting and adding the variables
# tens_string, hyphen_string, ones_string
def convert_to_word(num, uppercase):
    tens_place_lower = ["", "", "twenty", "thirty", "forty", "fifty", "sixty",
                        "seventy", "eighty", "ninety"]
    tens_place_upper = ["", "", "Twenty", "Thirty", "Forty", "Fifty", "Sixty",
                        "Seventy", "Eighty", "Ninety"]
    ones_place_lower = ["", "one", "two", "three", "four", "five", "six",
                        "seven", "eight", "nine", "ten", "eleven",
                        "twelve", "thirteen", "fourteen", "fifteen", "sixteen",
                        "seventeen", "eighteen", "nineteen"]
    ones_place_upper = ["", "One", "Two", "Three", "Four", "Five", "Six",
                        "Seven", "Eight", "Nine", "Ten", "Eleven",
                        "Twelve", "Thirteen", "Fourteen", "Fifteen", "Sixteen",
                        "Seventeen", "Eighteen", "Nineteen"]

    tens_string = ""
    hyphen_string = ""

    if num < 20:
        if uppercase:
            ones_string = ones_place_upper[num]
        else:
            ones_string = ones_place_lower[num]
    else:
        if uppercase:
            tens_string = tens_place_upper[num / 10]
        else:
            tens_string = tens_place_lower[num / 10]

        ones_value = num % 10
        ones_string = ones_place_lower[ones_value]

        if ones_value != 0:
            hyphen_string = "-"

    return tens_string + hyphen_string + ones_string

def bottle_verse(verse_number):
    if verse_number > 2:
```

```
print convert_to_word(verse_number, True) + " bottles of beer on the wall, " \
      + convert_to_word(verse_number, False) + " bottles of beer."
print "Take one down and pass it around, " + \
      convert_to_word(verse_number - 1, False) + " bottles of beer on the
wall."
else:
    bottle_verse_special(verse_number)

for i in range(99, -1, -1):
    bottle_verse(i)
print
```

Ninety-nine bottles of beer on the wall, ninety-nine bottles of beer.  
Take one down and pass it around, ninety-eight bottles of beer on the wall.

Ninety-eight bottles of beer on the wall, ninety-eight bottles of beer.  
Take one down and pass it around, ninety-seven bottles of beer on the wall.

Ninety-seven bottles of beer on the wall, ninety-seven bottles of beer.  
Take one down and pass it around, ninety-six bottles of beer on the wall.

Ninety-six bottles of beer on the wall, ninety-six bottles of beer.  
Take one down and pass it around, ninety-five bottles of beer on the wall.

Ninety-five bottles of beer on the wall, ninety-five bottles of beer.  
Take one down and pass it around, ninety-four bottles of beer on the wall.

Ninety-four bottles of beer on the wall, ninety-four bottles of beer.  
Take one down and pass it around, ninety-three bottles of beer on the wall.

Ninety-three bottles of beer on the wall, ninety-three bottles of beer.  
Take one down and pass it around, ninety-two bottles of beer on the wall.

Ninety-two bottles of beer on the wall, ninety-two bottles of beer.  
Take one down and pass it around, ninety-one bottles of beer on the wall.

Ninety-one bottles of beer on the wall, ninety-one bottles of beer.  
Take one down and pass it around, ninety bottles of beer on the wall.

Ninety bottles of beer on the wall, ninety bottles of beer.  
Take one down and pass it around, eighty-nine bottles of beer on the wall.

Eighty-nine bottles of beer on the wall, eighty-nine bottles of beer.  
Take one down and pass it around, eighty-eight bottles of beer on the wall.

Eighty-eight bottles of beer on the wall, eighty-eight bottles of beer.  
Take one down and pass it around, eighty-seven bottles of beer on the wall.

Eighty-seven bottles of beer on the wall, eighty-seven bottles of beer.  
Take one down and pass it around, eighty-six bottles of beer on the wall.

Eighty-six bottles of beer on the wall, eighty-six bottles of beer.  
Take one down and pass it around, eighty-five bottles of beer on the wall.



Eighty-five bottles of beer on the wall, eighty-five bottles of beer.  
Take one down and pass it around, eighty-four bottles of beer on the wall.

Eighty-four bottles of beer on the wall, eighty-four bottles of beer.  
Take one down and pass it around, eighty-three bottles of beer on the wall.

Eighty-three bottles of beer on the wall, eighty-three bottles of beer.  
Take one down and pass it around, eighty-two bottles of beer on the wall.

Eighty-two bottles of beer on the wall, eighty-two bottles of beer.  
Take one down and pass it around, eighty-one bottles of beer on the wall.

Eighty-one bottles of beer on the wall, eighty-one bottles of beer.  
Take one down and pass it around, eighty bottles of beer on the wall.

Eighty bottles of beer on the wall, eighty bottles of beer.  
Take one down and pass it around, seventy-nine bottles of beer on the wall.

Seventy-nine bottles of beer on the wall, seventy-nine bottles of beer.  
Take one down and pass it around, seventy-eight bottles of beer on the wall.

Seventy-eight bottles of beer on the wall, seventy-eight bottles of beer.  
Take one down and pass it around, seventy-seven bottles of beer on the wall.

Seventy-seven bottles of beer on the wall, seventy-seven bottles of beer.  
Take one down and pass it around, seventy-six bottles of beer on the wall.

Seventy-six bottles of beer on the wall, seventy-six bottles of beer.  
Take one down and pass it around, seventy-five bottles of beer on the wall.

Seventy-five bottles of beer on the wall, seventy-five bottles of beer.  
Take one down and pass it around, seventy-four bottles of beer on the wall.

Seventy-four bottles of beer on the wall, seventy-four bottles of beer.  
Take one down and pass it around, seventy-three bottles of beer on the wall.

Seventy-three bottles of beer on the wall, seventy-three bottles of beer.  
Take one down and pass it around, seventy-two bottles of beer on the wall.

Seventy-two bottles of beer on the wall, seventy-two bottles of beer.  
Take one down and pass it around, seventy-one bottles of beer on the wall.

Seventy-one bottles of beer on the wall, seventy-one bottles of beer.  
Take one down and pass it around, seventy bottles of beer on the wall.

Seventy bottles of beer on the wall, seventy bottles of beer.  
Take one down and pass it around, sixty-nine bottles of beer on the wall.

Sixty-nine bottles of beer on the wall, sixty-nine bottles of beer.  
Take one down and pass it around, sixty-eight bottles of beer on the wall.

Sixty-eight bottles of beer on the wall, sixty-eight bottles of beer.  
Take one down and pass it around, sixty-seven bottles of beer on the wall.

Sixty-seven bottles of beer on the wall, sixty-seven bottles of beer.  
Take one down and pass it around, sixty-six bottles of beer on the wall.

Sixty-six bottles of beer on the wall, sixty-six bottles of beer.  
Take one down and pass it around, sixty-five bottles of beer on the wall.

Sixty-five bottles of beer on the wall, sixty-five bottles of beer.  
Take one down and pass it around, sixty-four bottles of beer on the wall.

Sixty-four bottles of beer on the wall, sixty-four bottles of beer.  
Take one down and pass it around, sixty-three bottles of beer on the wall.

Sixty-three bottles of beer on the wall, sixty-three bottles of beer.  
Take one down and pass it around, sixty-two bottles of beer on the wall.

Sixty-two bottles of beer on the wall, sixty-two bottles of beer.  
Take one down and pass it around, sixty-one bottles of beer on the wall.

Sixty-one bottles of beer on the wall, sixty-one bottles of beer.  
Take one down and pass it around, sixty bottles of beer on the wall.

Sixty bottles of beer on the wall, sixty bottles of beer.  
Take one down and pass it around, fifty-nine bottles of beer on the wall.

Fifty-nine bottles of beer on the wall, fifty-nine bottles of beer.  
Take one down and pass it around, fifty-eight bottles of beer on the wall.

Fifty-eight bottles of beer on the wall, fifty-eight bottles of beer.  
Take one down and pass it around, fifty-seven bottles of beer on the wall.

Fifty-seven bottles of beer on the wall, fifty-seven bottles of beer.  
Take one down and pass it around, fifty-six bottles of beer on the wall.

Fifty-six bottles of beer on the wall, fifty-six bottles of beer.  
Take one down and pass it around, fifty-five bottles of beer on the wall.

Fifty-five bottles of beer on the wall, fifty-five bottles of beer.  
Take one down and pass it around, fifty-four bottles of beer on the wall.

Fifty-four bottles of beer on the wall, fifty-four bottles of beer.  
Take one down and pass it around, fifty-three bottles of beer on the wall.

Fifty-three bottles of beer on the wall, fifty-three bottles of beer.  
Take one down and pass it around, fifty-two bottles of beer on the wall.

Fifty-two bottles of beer on the wall, fifty-two bottles of beer.  
Take one down and pass it around, fifty-one bottles of beer on the wall.

Fifty-one bottles of beer on the wall, fifty-one bottles of beer.  
Take one down and pass it around, fifty bottles of beer on the wall.

Fifty bottles of beer on the wall, fifty bottles of beer.  
Take one down and pass it around, forty-nine bottles of beer on the wall.

Forty-nine bottles of beer on the wall, forty-nine bottles of beer.

Take one down and pass it around, forty-eight bottles of beer on the wall.

Forty-eight bottles of beer on the wall, forty-eight bottles of beer.  
Take one down and pass it around, forty-seven bottles of beer on the wall.

Forty-seven bottles of beer on the wall, forty-seven bottles of beer.  
Take one down and pass it around, forty-six bottles of beer on the wall.

Forty-six bottles of beer on the wall, forty-six bottles of beer.  
Take one down and pass it around, forty-five bottles of beer on the wall.

Forty-five bottles of beer on the wall, forty-five bottles of beer.  
Take one down and pass it around, forty-four bottles of beer on the wall.

Forty-four bottles of beer on the wall, forty-four bottles of beer.  
Take one down and pass it around, forty-three bottles of beer on the wall.

Forty-three bottles of beer on the wall, forty-three bottles of beer.  
Take one down and pass it around, forty-two bottles of beer on the wall.

Forty-two bottles of beer on the wall, forty-two bottles of beer.  
Take one down and pass it around, forty-one bottles of beer on the wall.

Forty-one bottles of beer on the wall, forty-one bottles of beer.  
Take one down and pass it around, forty bottles of beer on the wall.

Forty bottles of beer on the wall, forty bottles of beer.  
Take one down and pass it around, thirty-nine bottles of beer on the wall.

Thirty-nine bottles of beer on the wall, thirty-nine bottles of beer.  
Take one down and pass it around, thirty-eight bottles of beer on the wall.

Thirty-eight bottles of beer on the wall, thirty-eight bottles of beer.  
Take one down and pass it around, thirty-seven bottles of beer on the wall.

Thirty-seven bottles of beer on the wall, thirty-seven bottles of beer.  
Take one down and pass it around, thirty-six bottles of beer on the wall.

Thirty-six bottles of beer on the wall, thirty-six bottles of beer.  
Take one down and pass it around, thirty-five bottles of beer on the wall.

Thirty-five bottles of beer on the wall, thirty-five bottles of beer.  
Take one down and pass it around, thirty-four bottles of beer on the wall.

Thirty-four bottles of beer on the wall, thirty-four bottles of beer.  
Take one down and pass it around, thirty-three bottles of beer on the wall.

Thirty-three bottles of beer on the wall, thirty-three bottles of beer.  
Take one down and pass it around, thirty-two bottles of beer on the wall.

Thirty-two bottles of beer on the wall, thirty-two bottles of beer.  
Take one down and pass it around, thirty-one bottles of beer on the wall.

Thirty-one bottles of beer on the wall, thirty-one bottles of beer.  
Take one down and pass it around, thirty bottles of beer on the wall.

Thirty bottles of beer on the wall, thirty bottles of beer.  
Take one down and pass it around, twenty-nine bottles of beer on the wall.

Twenty-nine bottles of beer on the wall, twenty-nine bottles of beer.  
Take one down and pass it around, twenty-eight bottles of beer on the wall.

Twenty-eight bottles of beer on the wall, twenty-eight bottles of beer.  
Take one down and pass it around, twenty-seven bottles of beer on the wall.

Twenty-seven bottles of beer on the wall, twenty-seven bottles of beer.  
Take one down and pass it around, twenty-six bottles of beer on the wall.

Twenty-six bottles of beer on the wall, twenty-six bottles of beer.  
Take one down and pass it around, twenty-five bottles of beer on the wall.

Twenty-five bottles of beer on the wall, twenty-five bottles of beer.  
Take one down and pass it around, twenty-four bottles of beer on the wall.

Twenty-four bottles of beer on the wall, twenty-four bottles of beer.  
Take one down and pass it around, twenty-three bottles of beer on the wall.

Twenty-three bottles of beer on the wall, twenty-three bottles of beer.  
Take one down and pass it around, twenty-two bottles of beer on the wall.

Twenty-two bottles of beer on the wall, twenty-two bottles of beer.  
Take one down and pass it around, twenty-one bottles of beer on the wall.

Twenty-one bottles of beer on the wall, twenty-one bottles of beer.  
Take one down and pass it around, twenty bottles of beer on the wall.

Twenty bottles of beer on the wall, twenty bottles of beer.  
Take one down and pass it around, -nine bottles of beer on the wall.

Nineteen bottles of beer on the wall, -nine bottles of beer.  
Take one down and pass it around, eighteen bottles of beer on the wall.

Eighteen bottles of beer on the wall, eighteen bottles of beer.  
Take one down and pass it around, seventeen bottles of beer on the wall.

Seventeen bottles of beer on the wall, seventeen bottles of beer.  
Take one down and pass it around, sixteen bottles of beer on the wall.

Sixteen bottles of beer on the wall, sixteen bottles of beer.  
Take one down and pass it around, fifteen bottles of beer on the wall.

Fifteen bottles of beer on the wall, fifteen bottles of beer.  
Take one down and pass it around, fourteen bottles of beer on the wall.

Fourteen bottles of beer on the wall, fourteen bottles of beer.  
Take one down and pass it around, thirteen bottles of beer on the wall.

Thirteen bottles of beer on the wall, thirteen bottles of beer.  
Take one down and pass it around, twelve bottles of beer on the wall.

Twelve bottles of beer on the wall, twelve bottles of beer.  
Take one down and pass it around, eleven bottles of beer on the wall.

Eleven bottles of beer on the wall, eleven bottles of beer.  
Take one down and pass it around, ten bottles of beer on the wall.

Ten bottles of beer on the wall, ten bottles of beer.  
Take one down and pass it around, nine bottles of beer on the wall.

Nine bottles of beer on the wall, nine bottles of beer.  
Take one down and pass it around, eight bottles of beer on the wall.

Eight bottles of beer on the wall, eight bottles of beer.  
Take one down and pass it around, seven bottles of beer on the wall.

Seven bottles of beer on the wall, seven bottles of beer.  
Take one down and pass it around, six bottles of beer on the wall.

Six bottles of beer on the wall, six bottles of beer.  
Take one down and pass it around, five bottles of beer on the wall.

Five bottles of beer on the wall, five bottles of beer.  
Take one down and pass it around, four bottles of beer on the wall.

Four bottles of beer on the wall, four bottles of beer.  
Take one down and pass it around, three bottles of beer on the wall.

Three bottles of beer on the wall, three bottles of beer.  
Take one down and pass it around, two bottles of beer on the wall.

Two bottles of beer on the wall, two bottles of beer.  
Take one down and pass it around, one bottle of beer on the wall.

One bottle of beer on the wall, one bottle of beer.  
Take one down and pass it around, no more bottles of beer on the wall.

No more bottles of beer on the wall, no more bottles of beer.  
Go to the store and buy some more, ninety-nine bottles of beer on the wall.

**Problem 3:**

```
def palindrome_test(phrase):  
    phrase = str.lower(phrase)  
  
    # If the inverse of the string is the same as the string itself, the string  
    # is a palindrome.  
  
    return phrase == phrase[::-1]  
  
while True:  
    word = raw_input("Enter a word to see if it's a palindrome: ")  
    print palindrome_test(word)
```

```
Enter a word to see if it's a palindrome: racecar  
True  
Enter a word to see if it's a palindrome: kayak  
True  
Enter a word to see if it's a palindrome: kayyak  
True
```

**Problem 4:**

```
def left_pad(string, padder, pad_length):  
    string = str(string)  
  
    while len(string) < pad_length:  
        string = padder + string  
  
    return string  
  
phrase = raw_input("Enter a word or number that you want to pad: ")  
pad_char = raw_input("What character would you like to pad it with? ")  
length = int(raw_input("How long would you like the string to be? "))  
  
print left_pad(phrase, pad_char, length)
```

```
Enter a word or number that you want to pad: 12345  
What character would you like to pad it with? 0  
How long would you like the string to be? 7  
0012345
```

## Problem 5:

```
def left_pad(string, padder, pad_length):
    string = str(string)

    while len(string) < pad_length:
        string = padder + string

    return string

def draw_grid():
    print "ASCII TABLE".center(86, " ")
    print "-----+---0---+---1---+---2---+---3---+---4---+---5---+---6---+---7" \
          "-----+---8---+---9---+"

    for i in range(13):
        print left_pad(i, " ", 4) + " |",

        for n in range(10):
            char_num = i * 10 + n

            if char_num < 32:
                char = "ctrl"
            elif char_num == 127:
                char = "DEL"
            elif char_num > 127:
                char = "n/a"
            else:
                char = chr(char_num)

            print char.center(5, " ") + " |",

        print
    print "-----+-----+-----+-----+-----+-----+-----+-----+-----+" \
          "-----+-----+"

draw_grid()
```

ASCII TABLE

0	1	2	3	4	5	6	7	8	9
ctrl	ctrl	ctrl	ctrl	ctrl	ctrl	ctrl	ctrl	ctrl	ctrl
ctrl	ctrl	ctrl	ctrl	ctrl	ctrl	ctrl	ctrl	ctrl	ctrl
ctrl	ctrl	ctrl	ctrl	ctrl	ctrl	ctrl	ctrl	ctrl	ctrl
ctrl	ctrl		!	"	#	\$	%	&	'
(	)	*	+	,	-	.	/	0	1
2	3	4	5	6	7	8	9	:	;
<	=	>	?	@	A	B	C	D	E
F	G	H	I	J	K	L	M	N	O
P	Q	R	S	T	U	V	W	X	Y
Z	[	\	]	^	_	`	a	b	c
d	e	f	g	h	i	j	k	l	m
n	o	p	q	r	s	t	u	v	w
x	y	z	{		}	~	DEL	n/a	n/a

**Problem N:**

Henry Geoffrion – More concise method for Problem 3 (original split the string in halves and checked if the halves were equal)

Python 2.7.12

<https://docs.python.org/2/library/string.html>