

## Beer problem



A beer provider determines to give away free beer in its 100 anniversary. For every beer, you have an empty bottle and a cap after drinking. You can redeem an extra bottle of beer for every 2 bottles or 4 caps from the provider.

- (a) Suppose you have 10 bottles of beer, how many bottles of beer altogether (including the originally 10) you can drink?
- (b) Find  $f(n)$ , the total number of bottles of beer if originally you have  $n$  bottles.

**Note:** You are **not** allowed to borrow empty bottles or caps from others.

You may use EXCEL or other software to help you to get  $f(n)$ .

You only need to provide the answers and not the lengthy logics behind.

### Answers:

- (a) 35
- (b)  $f(n) = 4n - 5$

Link of small EXCEL program:

<http://www.qc.edu.hk/math/Small%20problems/Beer.xlsx>