

4. (6 points) Suppose that a small village in England rings bells 8 times each time a man dies, and 5 times each time a woman dies.

- (a) Which numbers under 30 can occur as men and women die simultaneously?
- (b) Is it true that each number above 30 can occur as possible bell rings?
- (c) As we already did in class, call a number of bell rings *ambiguous* if it can be interpreted in more than one way as indicating the deaths of men and women. The smallest ambiguous number is 40. What are the next two smallest ambiguous numbers?

Extra Credit (1 point)

You may do only one of the following three questions.

State the *nikhilam* sutra in Sanskrit (English transliteration is fine), along with an English translation.

or

Diagram and label the nine “cardinal vowel” symbols presented in class.

or

Give a formula for the sum $1 + 2 + \cdots + n$.