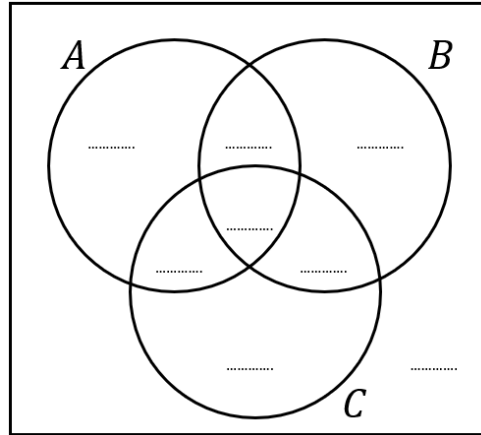


(a)

Complete the Venn diagram to show the number of elements in each set, given the information below.

$$\begin{aligned} n(A \cap B \cap C) &= 9 \\ n(A \cap B) &= 11 \\ n(B \cap C \cap A') &= 12 \\ n(A \cup B \cup C)' &= 7 \\ n(A) &= 35 \\ n(A \cup B) &= 50 \\ n(A \cap C \cap B') &= \emptyset \\ n(\xi) &= 75 \end{aligned}$$

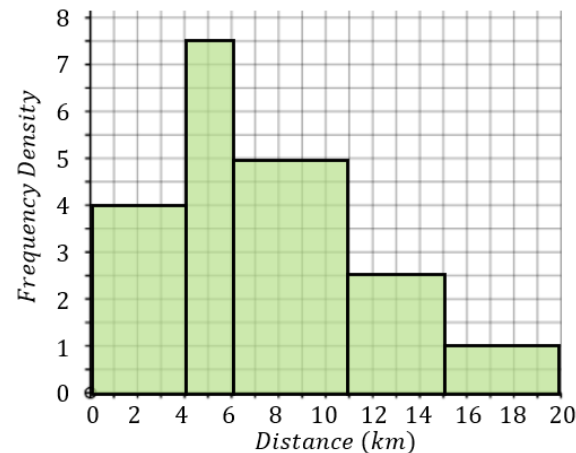


(b)

There are 12 pens in a pencil case. 6 pens are red, 2 are black and the rest are green. Dottie chooses two pens from the pencil case at random. Work out the probability that both the pens chosen are the same colour.

(c)

The histogram shows information on the distance in km that some workers commute to work each morning. Estimate the proportion of workers who commute more than 10 km.



(d)

A biscuit tin contains 8 bourbons and some digestives. There are  $n$  biscuits in total in the tin. Roy chooses two biscuits at random from the tin. Given that the probability that Roy chooses two different types of biscuit is  $\frac{48}{95}$ , find the total number of biscuits in the tin.