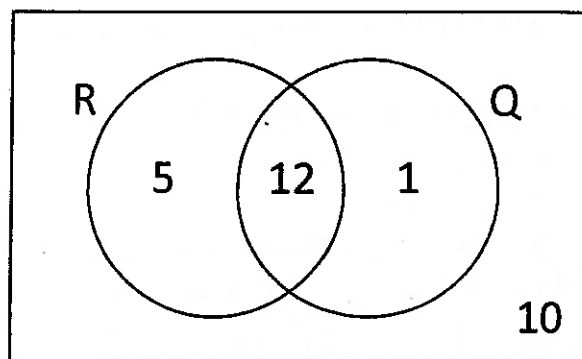


## Venn Diagrams

1. The Venn diagram on the right shows the events R and Q.

Find:

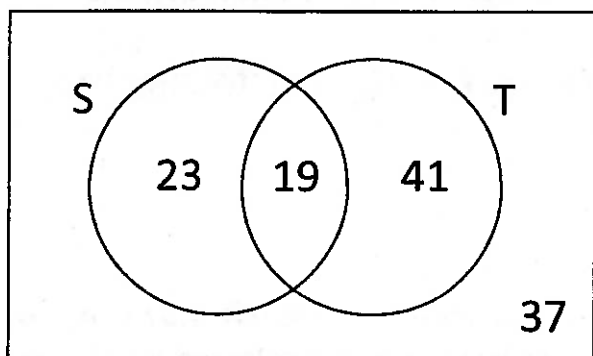
- a)  $P(R \cap Q)$
- b)  $P(R')$
- c)  $P(R' \cap Q)$
- d)  $P(R \cup Q)$
- e)  $P(R' \cup Q)$



2. The Venn diagram on the left shows the events S and T.

Find:

- a)  $P(S \cap T')$
- b)  $P(T)$
- c)  $P(S' \cap T')$
- d)  $P(S \cup T)$
- e)  $P(S \cup T')$



3. At 4pm one day, 40 people were asked if they'd had breakfast or lunch that day.

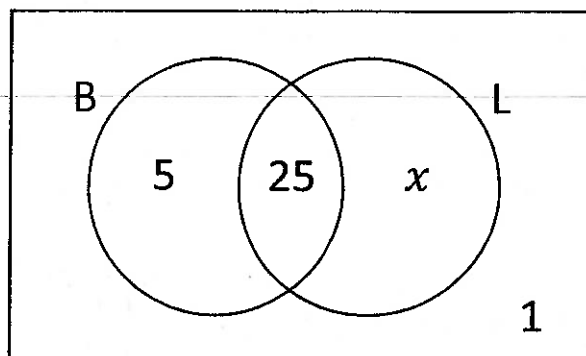
B = Breakfast

L = Lunch

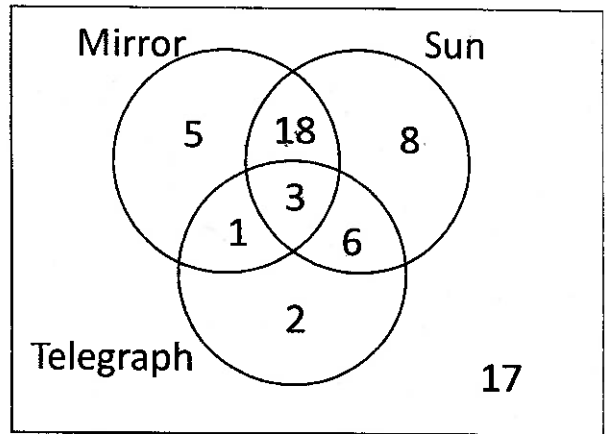
The Venn diagram on the right shows their responses.

Find:

- a) The value of  $x$
- b)  $P(B')$
- c)  $P(B' \cap L)$
- d)  $P(B \cup L)$
- e)  $P(B' \cup L)$
- f) Given that a person hadn't eaten breakfast, find the probability they also didn't have lunch

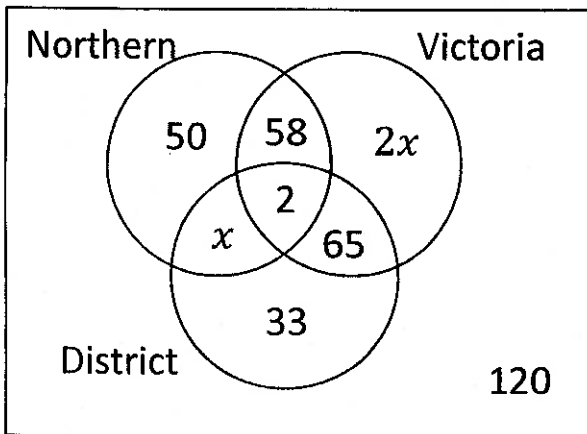


4. 60 people were asked which newspaper they'd read in the past week. The Venn diagram on the right shows their responses.



A person is selected at random. Find the probability they:

- Had read the Mirror but not the Sun
- Had read at least one of the newspapers
- Had read the Sun and the Telegraph but not the Mirror
- Given that they had read the Sun, what is the probability they had not read the Mirror?
- Find the probability that they had read all three newspapers, given that they had read the Mirror.



5. The Venn diagram on the left shows the tube line used by 400 randomly selected customers on a particular day.

- Find the value of  $x$

A person is selected at random. Find the probability they:

- Used the Victoria line
- Used none of the three tube lines
- Used the Victoria line and only one other line
- Didn't use the Northern or Victoria lines
- Given that they used at least one of the tube lines, find the probability that they had used the District line.
- Find the probability that they used the Victoria line given that they didn't use the District line