

JustMaths

Venn Diagrams

Name: Worked Solutions

Total Marks: _____

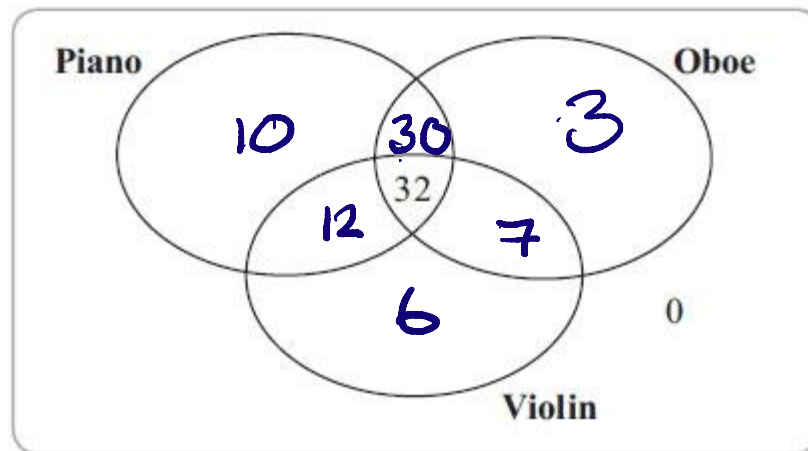
| Q. | Max | Actual | RAG |
|----|-----|--------|-----|
| 1 | 6 | | |
| 2 | 8 | | |
| 3 | 1 | | |
| 4 | 4 | | |
| 5 | | | |
| 6 | | | |
| 7 | | | |

Q1. There are 100 students at a music school.

- ✓ 12 of the students play the piano and violin only.
- ✓ 7 of the students play the violin and oboe only.
- ✓ 30 of the students play the piano and oboe only.
- ✓ 84 of the students in total play the piano.
- 57 of the students in total play the violin.

(a) Complete the Venn diagram using this information.

$$\begin{array}{r} 32 \\ 12 \\ + 7 \\ \hline 51 \end{array}$$



(3)

One of the 100 students is picked at random.

(b) Write down the probability that this student plays the piano and the oboe.

$$\frac{62}{100}$$

(1)

Given that the student plays the piano,

(c) find the probability that this student also plays the violin.

$$\begin{array}{r} 10 + \\ 30 \\ 32 \\ 12 \\ \hline 84 \end{array} \quad \begin{array}{r} 12 + \\ 32 \\ 44 \end{array}$$

$$\frac{44}{84}$$

(2)

(Total for Question is 6 marks)

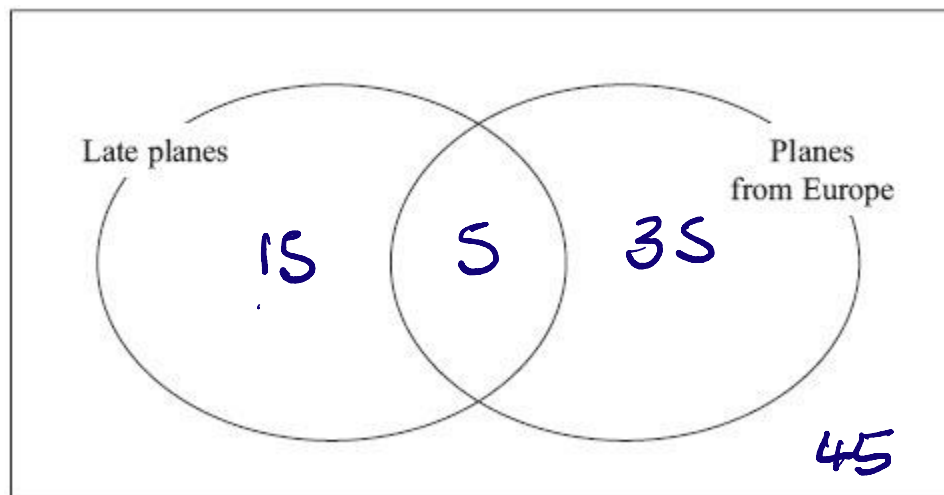
Q2. 100 planes landed at Heathrow Airport in a 3 hour period.

40 of the planes were from Europe.

20 of the planes were late, including 5 planes from Europe.

Data source: adapted from www.FlightStats.com

(a) Complete the Venn diagram using the information above.



(3)

One of these planes is chosen at random.

(b) Find the probability that

(i) the plane was **not** from Europe.

$$\frac{60}{100}$$

(ii) the plane was on time and was from Europe.

$$\frac{35}{100}$$

(3)

Given that the plane was late,

(c) find the probability that the plane was from Europe.

$$\frac{5}{20}$$

(2)

(Total for Question is 8 marks)

Q3. Given that $P(A) = 0.9$ find: $P(A')$

$$P(A') = 1 - 0.9 = 0.1$$

(Total for Question is 1 marks)

Q4. Lisa asked 60 people which sports they liked from swimming, football and cricket.

8 people like all three sports. ✓

17 people like swimming and football. $17 - 8 = 9$

✓ 13 people like football and cricket. $13 - 8 = 5$

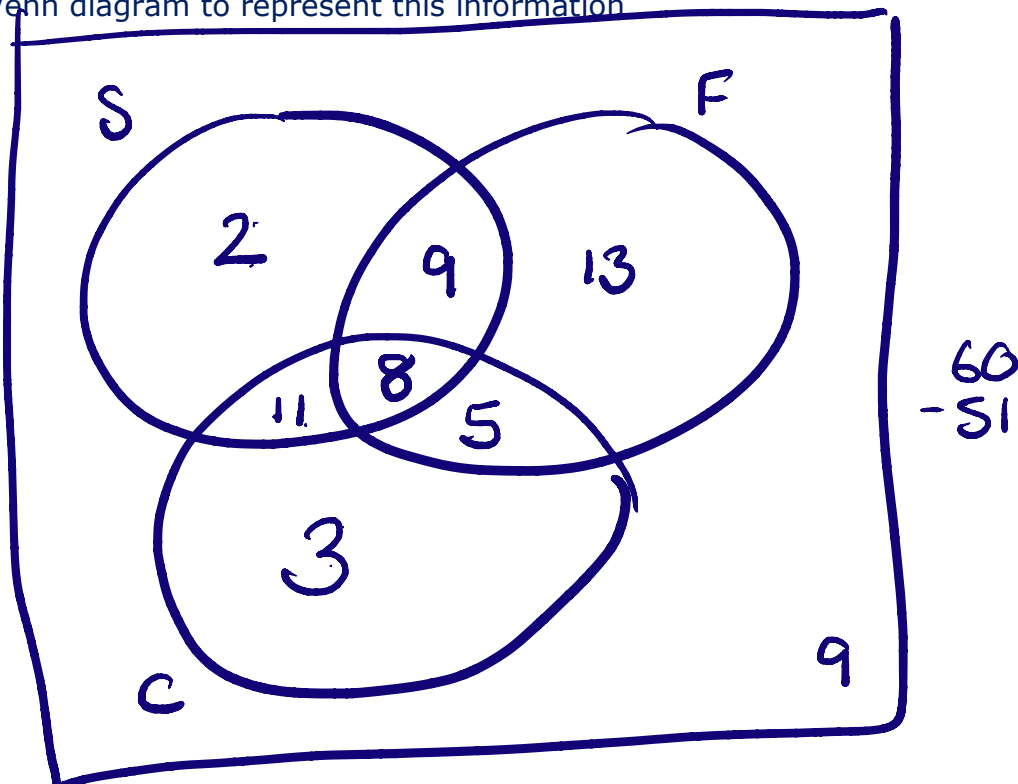
✓ 19 people like swimming and cricket. $19 - 8 = 11$

✓ 35 people like football.

✓ 27 people like cricket

✓ 30 people like swimming.

Draw a Venn diagram to represent this information



..... (4)