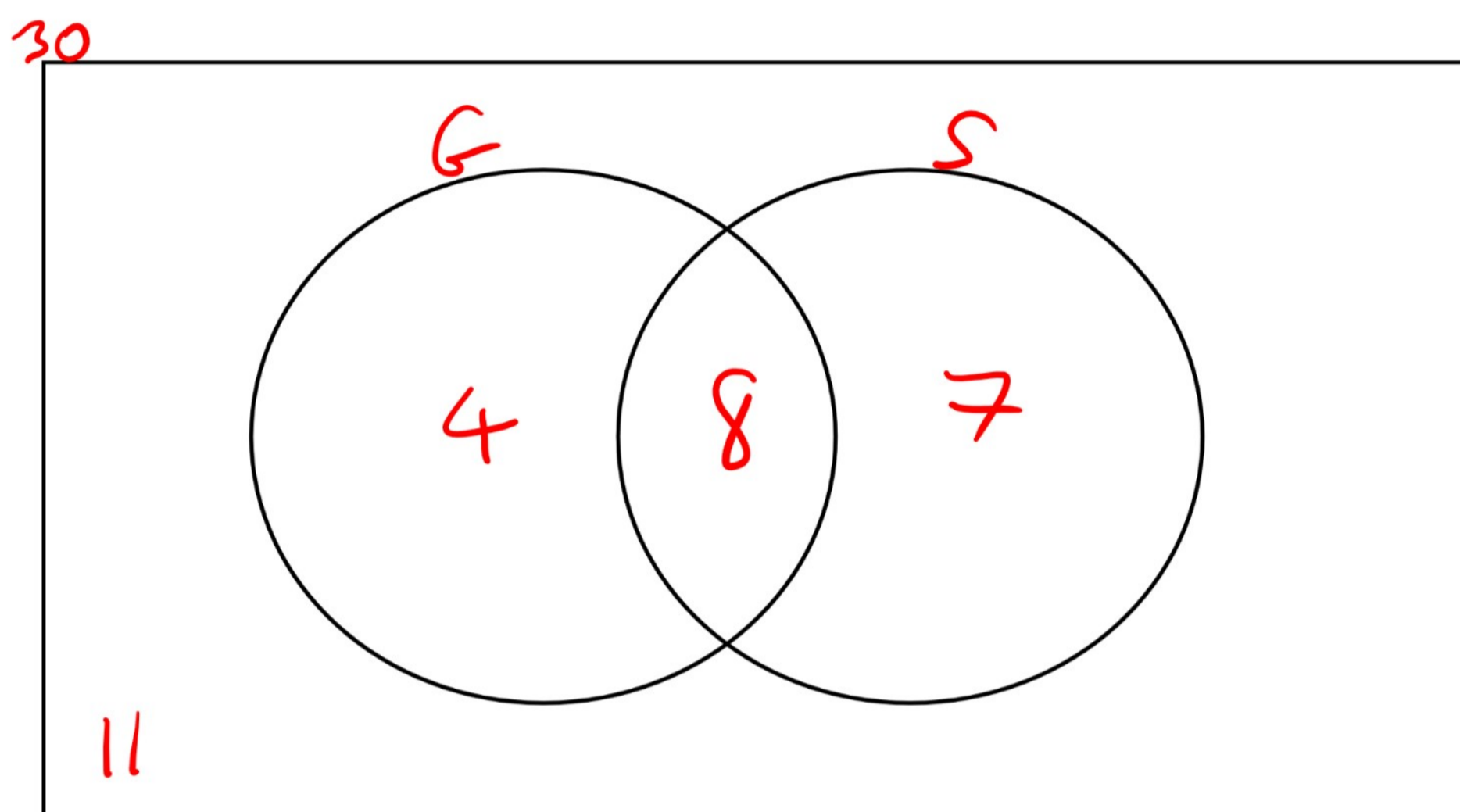




Venn Diagrams Exam Practice

Q1. A class contains 12 students who have been to Germany, and 15 students who have been to Spain. There are 11 students who have never been to either Spain or Germany, and 30 students in the class.

a) Use this information to complete the Venn diagram below



• $12 + 15 = 27$, but $G \cup S$ contains $30 - 11 = 19$
 $\therefore G \cap S = 27 - 19$
 $= 8$

Answer: _____
(2 marks)

• Germany only = $12 - 8$, Spain only = $15 - 8$

b) One of the students is selected at random from the class. Work out the probability that they have visited Germany.

$$\frac{4 + 8}{30}$$

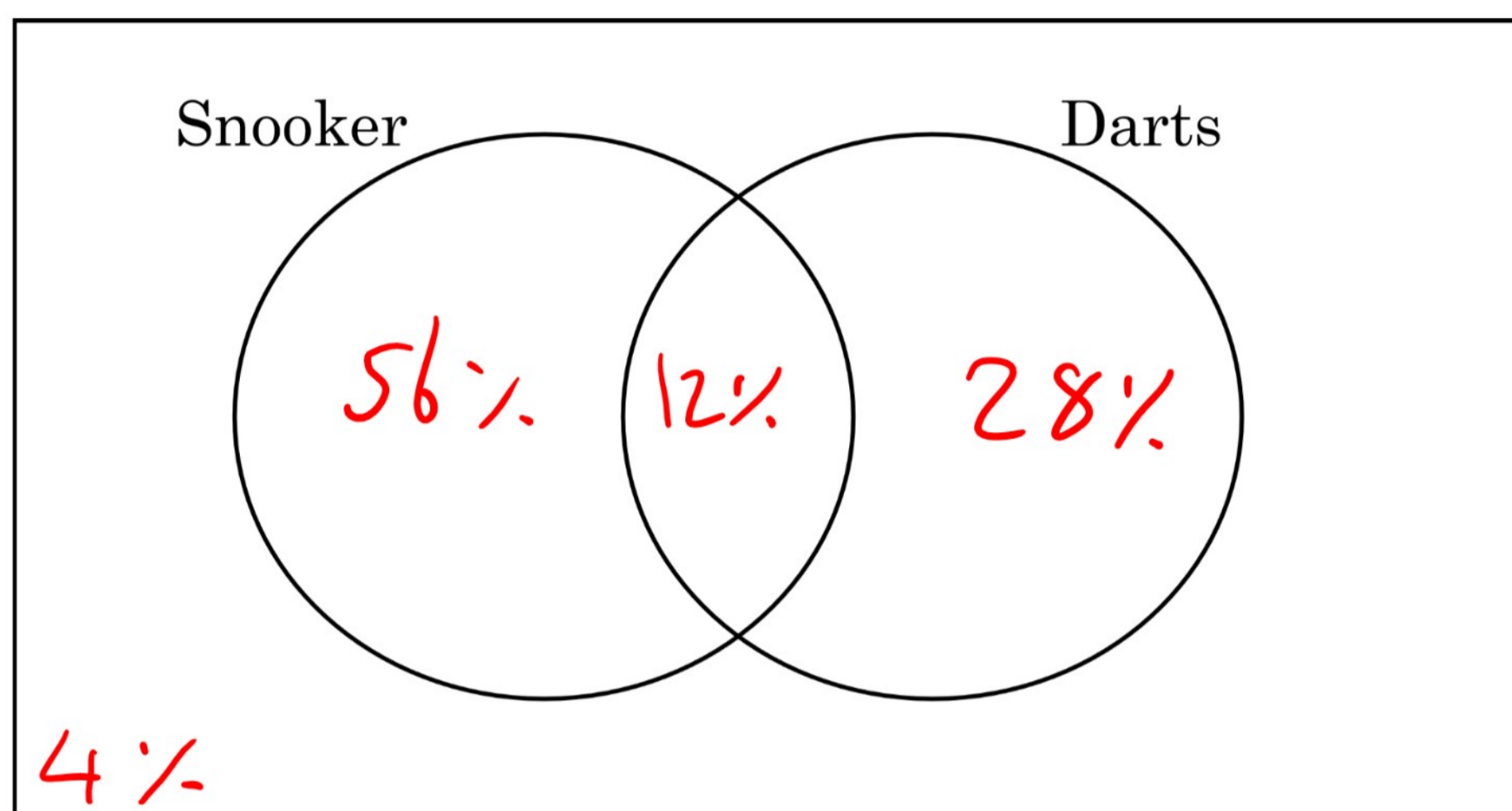
$$= \frac{12}{30}$$

Answer: $\frac{2}{5}$ _____
(2 marks)



Q2. At a sports club, the number of members who only play snooker and the number of members who play darts was in the ratio 7 : 5. 4% of the members did not play either snooker or darts, and 12% played both sports.

a) Use this information to complete the Venn diagram below



• The circles are $100 - 4 = 96\%$.

• Sharing 96% in the ratio 7:5

we have 56, 40 for only
snooker, and darts

Answer: _____

(2 marks)

• Darts only = $40 - 12 = 28$

b) One of the members is selected at random from the club. Work out the probability that they play darts or snooker, but not both.

$$56 + 28 = 84\%$$

Answer: _____

84%

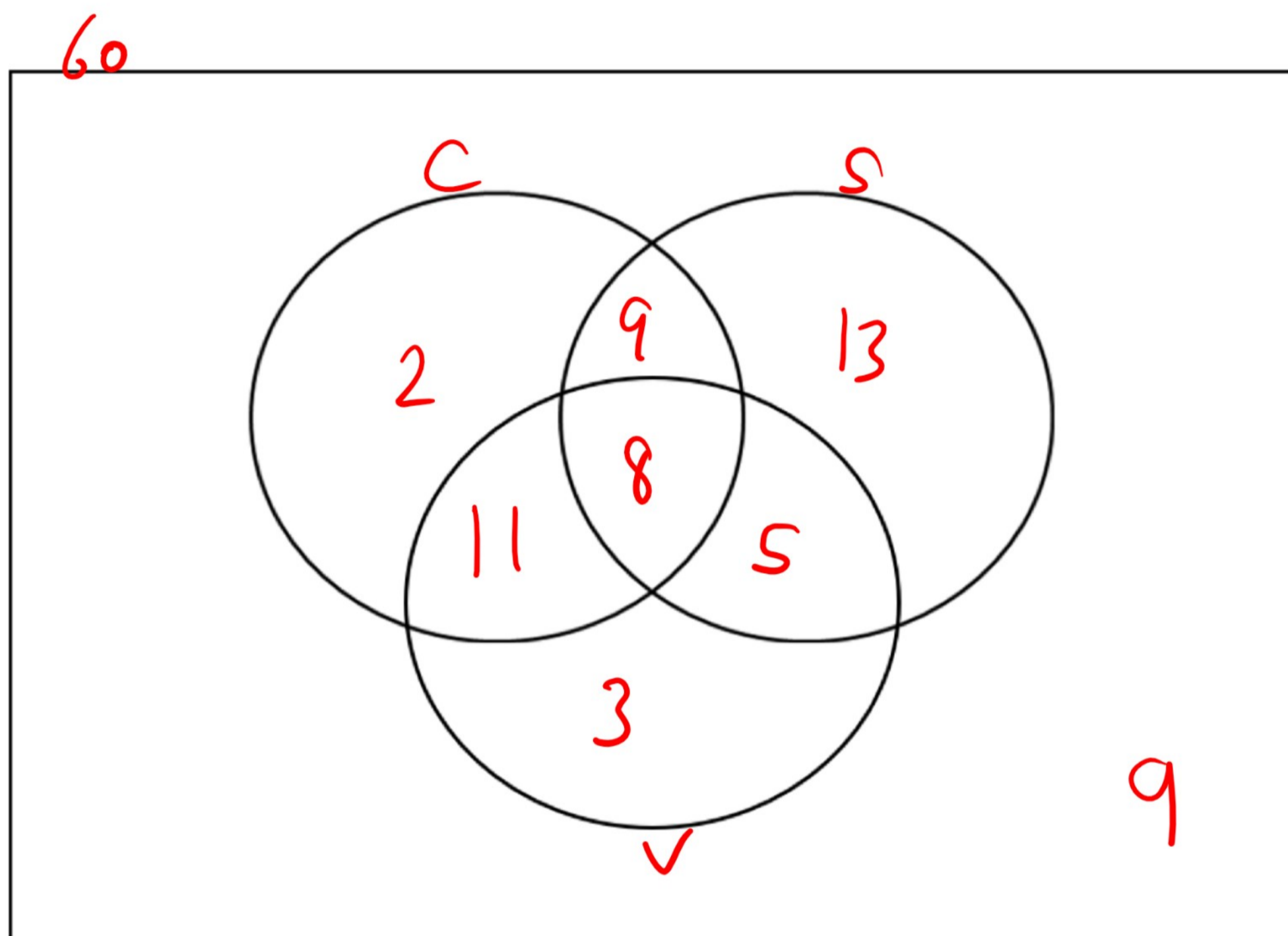
(2 marks)



Q3. 60 students were asked what they favourite flavour milkshake from chocolate, strawberry and vanilla.

8 people like all three flavours. 17 people like chocolate and strawberry. 13 people like strawberry and vanilla. 19 people like chocolate and vanilla.

35 people like strawberry. 27 people like vanilla 30 people like chocolate.



a) Use the information to complete the Venn diagram.

Answer: _____
(3 marks)

b) Work out what percentage of the students like only vanilla and chocolate

$$\frac{11}{60} \times 100$$

Answer: 18.3%
(2 marks)

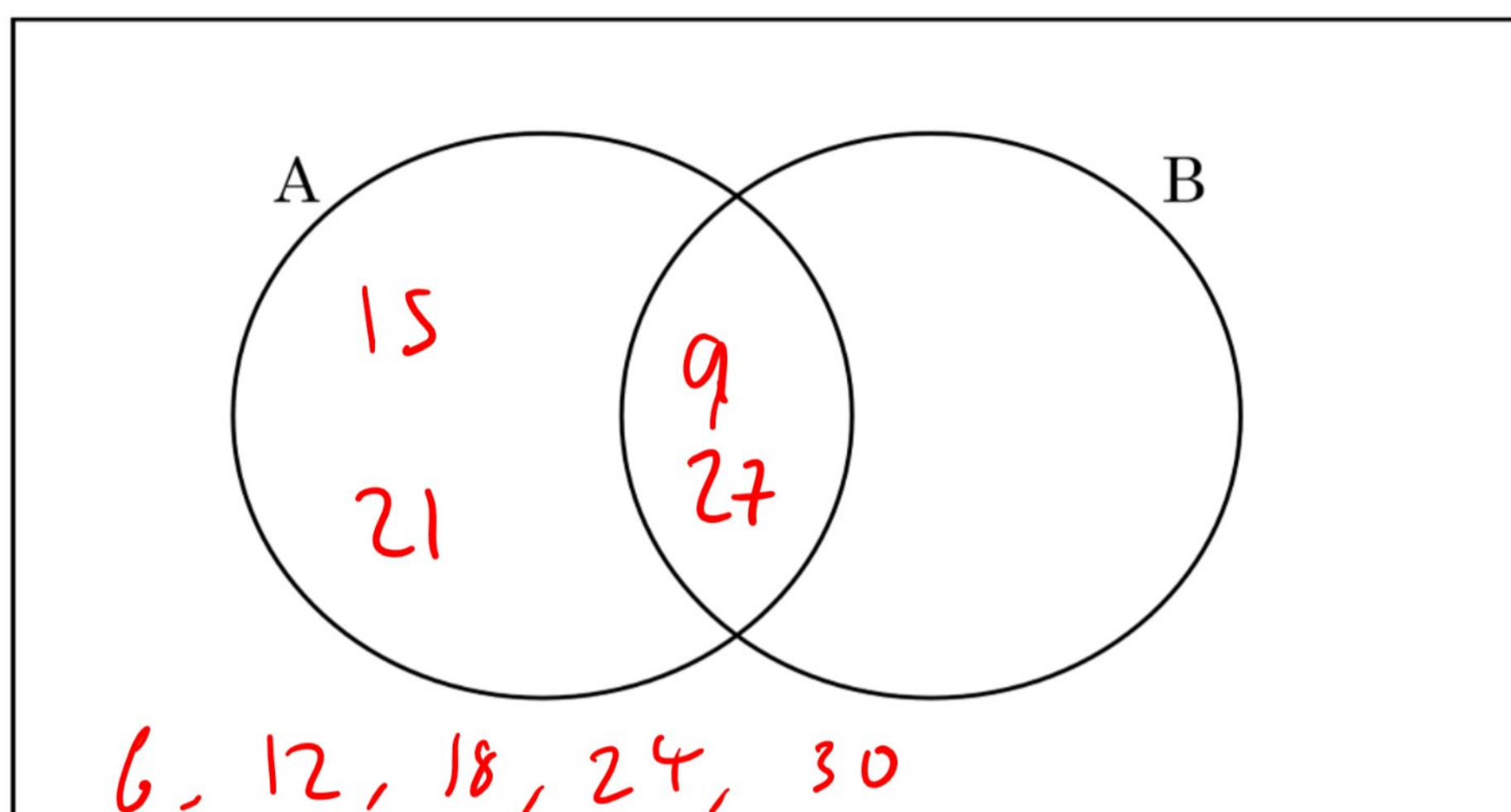


Q4. Let $\mathcal{E} = \{\text{all multiples of 3 between 5 and 32}\}$

$A = \{\text{odd numbers}\}$

$B = \{\text{square and cube numbers}\}$

a) Complete the Venn diagram below



$$\mathcal{E} = \{6, 9, 12, 15, 18, 21, 24, 27, 30\}$$

$$A = \{9, 15, 21, 27\}$$

$$B = \{9, 27\}$$

Answer: _____
(3 marks)

b) A number is chosen at random. Work out the probability that the number is both odd and not a square or cube number.

$$\frac{2}{9} \quad (15, 21 \text{ are odd and not squares/cubes})$$

Answer: $\frac{2}{9}$ _____
(3 marks)