

Topic Test 1 (20 minutes)

Probability - Higher

- 1 A fair spinner has 10 sections numbered from 1 to 10
Here are the results of 12 spins.

3 5 8 4 1 2 6 2 2 2 2 2

Circle the probability of getting a 2 on the next spin.

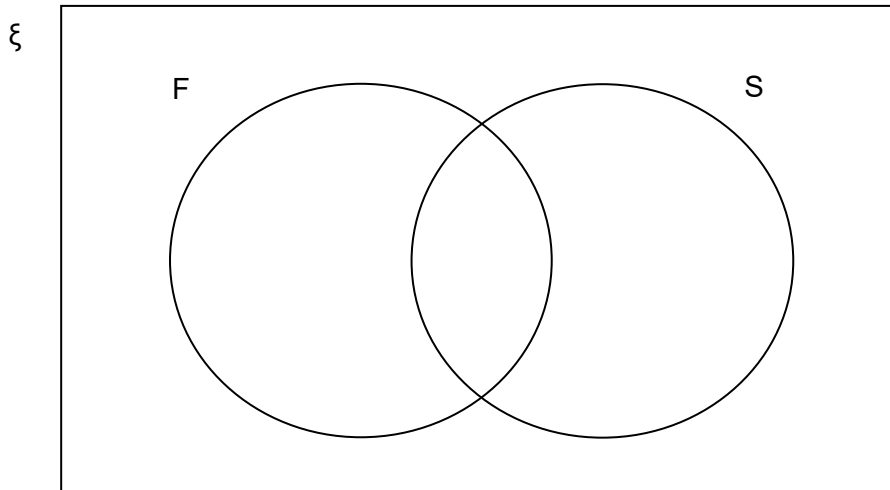
[1 mark]

$\frac{6}{13}$ $\frac{6}{12}$ $\frac{1}{10}$ $\frac{2}{10}$ 1

- 2 $\xi = \{230 \text{ students in a school}\}$
147 students take French (F).
94 students take Spanish (S).
15 students do **not** take French or Spanish.

- 2 (a) Complete the Venn diagram.

[3 marks]

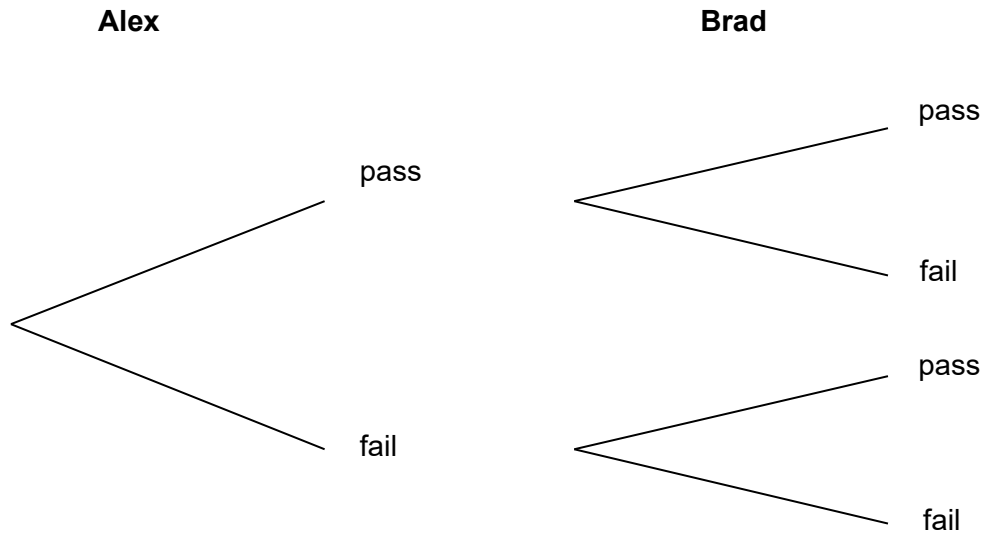


- 2 (b) A student is chosen at random.
Work out the probability that the student takes Spanish but not French.

[1 mark]

Answer _____

- 3 Alex has an 80% chance of passing a test.
Brad has a 60% chance of passing the test.

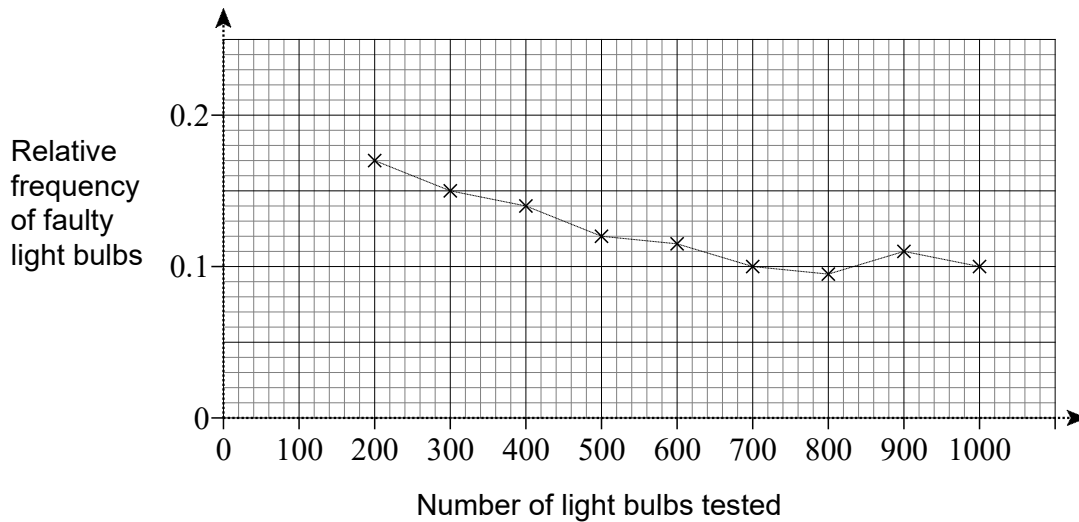


Work out the probability that Alex and Brad both fail the test.

[2 marks]

Answer _____

- 4** A factory makes light bulbs.
The graph shows the relative frequency of faulty light bulbs.



- 4 (a)** 16 of the first 100 light bulbs are faulty.
Plot the relative frequency on the graph.

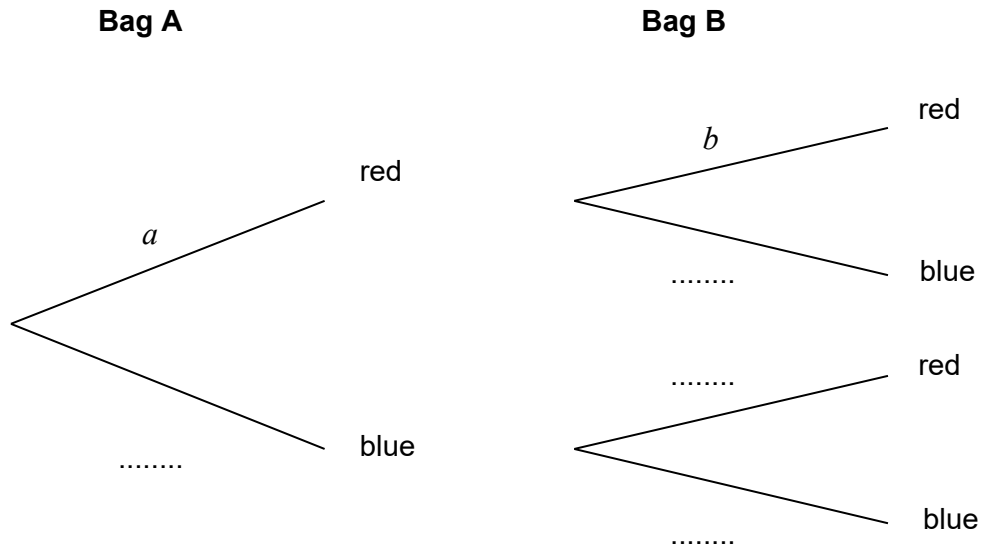
[1 mark]

- 4 (b)** The factory makes 20 000 light bulbs one month.
Work out the best estimate of the number of faulty light bulbs.

[2 marks]

Answer _____

- 5 Two bags both have red counters and blue counters.
A counter is chosen at random from each bag.



- 5 (a) Circle the expression for the probability of choosing a blue counter from Bag A. [1 mark]

$1 - a$ $100 - a$ $a - 1$ $\frac{a}{2}$

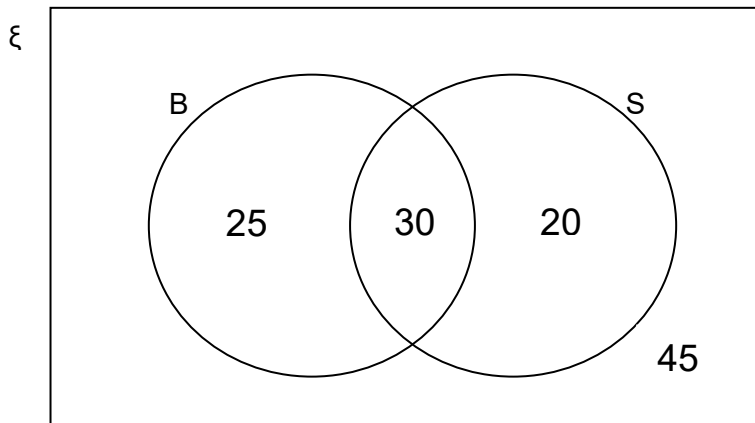
- 5 (b) Write down an expression for the probability of choosing a blue counter from A and B. [1 mark]

Answer _____

6 In the Venn diagram, $\xi = \{\text{eggs collected one morning}\}$

Set B = {brown eggs} Set S = {small eggs}

Eggs are brown or white, small or large.



6 (a) An egg is chosen at random.

Work out the probability that the egg is large and white.

[2 marks]

Answer _____

6 (b) The first egg is replaced.

Two more eggs are chosen at random for breakfast.

Work out the probability that one is brown and one is white.

[3 marks]

Answer _____

7 100 people were asked if they owned a cat or a dog or both.
The two-way table shows some of the results.

	Own a dog	Do not own a dog
Own a cat	13	27
Do not own a cat	32	

7 (a) Complete the two-way table to show the number who do **not** own a cat or a dog. **[1 mark]**

7 (b) A cat owner is chosen at random.
Work out the probability that this person does **not** own a dog. **[1 mark]**

Answer _____

7 (c) A person who does **not** own a cat is chosen at random.
Work out the probability that this person owns a dog. **[1 mark]**

Answer _____