Question 2 **(Suggested maximum time: 10 minutes)**

The percentage distribution of blood groups in the Irish population is given in the table below. The table also gives information about which types of blood can be safely used when people need to be given blood during an operation.

Blood Group	Percentage in Irish population	Blood groups to which transfusions can be safely given.	Blood groups from which transfusions can be safely received.
O-	8	All	O-
O+	47	O+, AB+, A+, B+	O+ and O-
A-	5	A-, A+, AB+, AB-	A- and O-
A+	26	A+ and AB+	A+, O-, O+, A-
B-	2	B-, B+, AB-, AB+	B- and O-
B+	9	B+ and AB+	B+, B-, O-, O+
AB-	1	AB- and AB+	AB-, O-, A-, B-
AB+	2	AB+	all

Source: Irish Blood Transfusion Service

(a) If an Irish person is chosen at random, what is the probability that that person will have blood group AB-?

(b) Mary has blood group B-. If a person is chosen at random from the population, what is the probability that Mary could safely receive blood from that person?

(c) Aaron has blood group O+ and donates blood. What is the probability that his blood can be given to a person randomly chosen from the population?

(d) The *Irish Blood Transfusion Service* recently asked that people with blood group O- should give blood as regularly as possible. Give a reason why this might be the case.

Question 3 **(Suggested maximum time: 10 minutes)**

The colour of 500 cars that pass a particular set of traffic lights during a two hour period is recorded by a group of students.

Colour	Frequency	Relative frequency	Daily frequency (Part **(e)** below)
Red	70		
Blue	100		
Yellow	45		
White	55		
Black			
Silver	140		
Total	500		

(a) Calculate the number of black cars and write it into the table.

(b) Calculate the relative frequency of each colour and write these into the table.

(c) Suggest a method to check that your relative frequency calculations are correct. Perform this check.

Method

Check

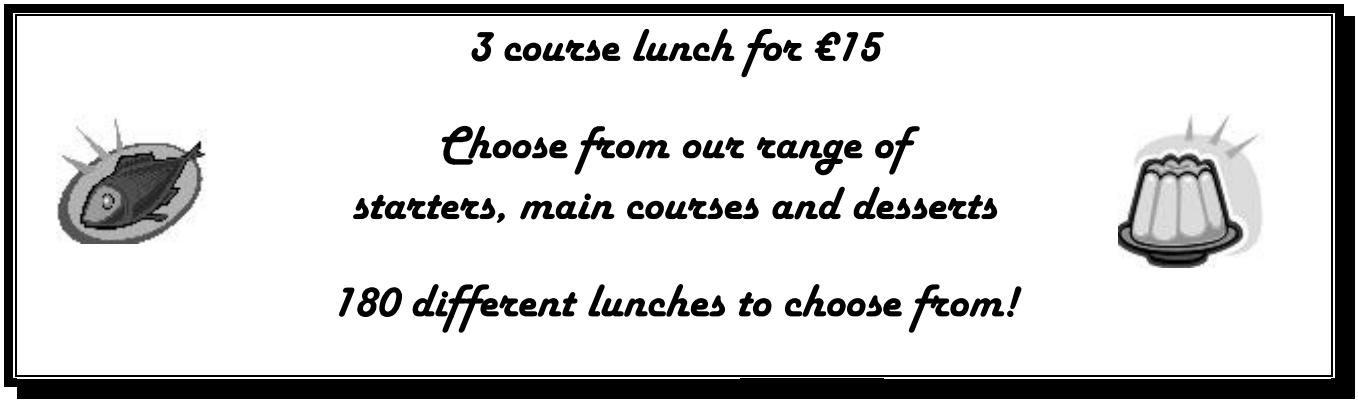
(d) What is the probability that the next car to pass the lights is red?

(e) Use the information to estimate the frequency of each colour if 2400 cars pass the lights in a full day. Write this information into the table.

(f) The data collected by the students is not a random sample of the cars passing throughout the day. Do you think that this makes your estimates in **(e)** above unreliable? Give a reason for your answer.

Question 4 **(Suggested maximum time: 5 minutes)**

A restaurant advertises its lunch menu using the sign below.



(a) The menu has a choice of five starters and nine main courses. How many items must appear on the dessert menu to justify the above claim of 180 different lunches?

(b) On a particular day one of the starters and one of the main courses is not available. How many different three course lunches is it possible to have on that day?