**6** All 35 students in class 11T were asked which of rugby ($R$), cricket ($C$) and football ($F$) they like.

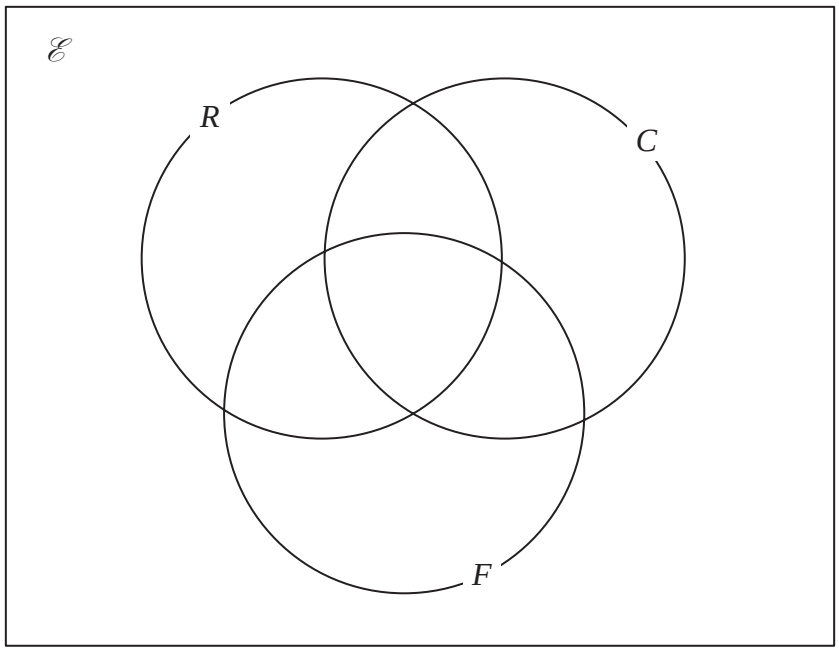
Of these 35 students

14 like rugby
20 like cricket
12 like football
6 like both cricket and football
7 like both rugby and football
4 like all three sports
5 do not like any of rugby, cricket or football.

Let $x$ be the number of students in class 11T who like both rugby and cricket.

(a) Show all this information on the Venn diagram, giving the number of elements in each appropriate subset, in terms of $x$ where necessary.

**(3)**




(b) Find the value of $x$.

**(2)**

(c) Find

(i) $n(R \cup F)$

(ii) $n(R \cap [C \cup F])$

**(2)**

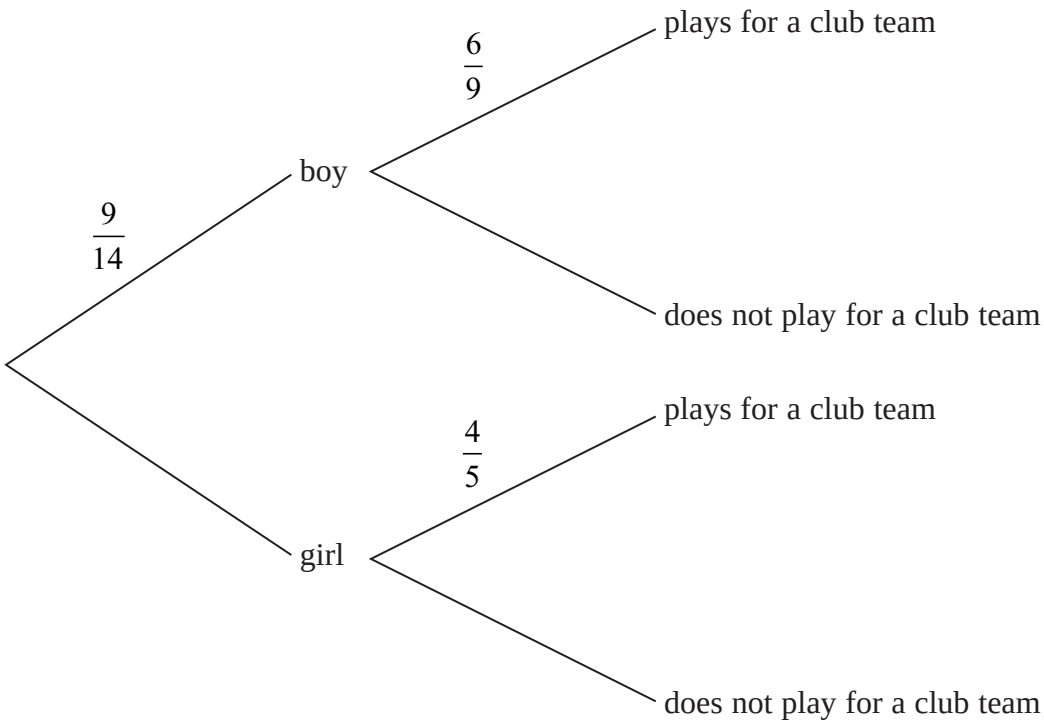
**Question 6 continued**

**Question 6 continues on the next page.**

**Question 6 continued**

Some of the 14 students in class 11T, who like rugby, play for a rugby club team.

The incomplete probability tree diagram gives information about these 14 students.




(d) Complete the probability tree diagram.

**(2)**

A student who likes rugby in class 11T is to be chosen at random.

(e) Find the probability that this student plays rugby for a club team.

**(2)**

**Question 6 continued**

**(Total for Question 6 is 11 marks)**