Question 3

a)

Diagram for analysis of scenario paints a vivid picture.

Mbeles

Madolos

Machakas

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Amakhosi Chiefs (AC) | | Buccaneer Pirates (BP) | |
|  | Parents | Children | Parents | Children |
| MADOLOS | 2 | X | X | 3 |
|  |  |  |  |  |
| MACHAKAS | X | 3 | 2 | X |
|  |  |  |  |  |
| MBELES | 1 | X | X | 3 |

To explain how one solved this problem.

1. Read the question more than 3 times and understand what it wants. Basically what you asked to do.

2. So from reading the question too much information was given to represent it in a simple effective manner I created a grid to help contain some valuable information.

3. Basically I’m using the grid to extract information from the question and insert it into the grind.

4. With the assumption that both parents are alive for all families I made such that father and mother are grouped together. So there 2 parents for each family and everyone left is regarded as a children.

5. So there 14 caps in total and we told that Madolos family has 5 members so we subtract that and we left with 9 caps and we also told that Mbele has 4 family members so we also subtract that and which leaves us with 5 members of Machakas. Using the assumption that each family has 2 parents and the rest are children.

6. One establishes that data depicted in the grid. The only predicament with futher classification is insufficient information on the Mbeles but fortunately we not asked about who supports which team we asked to find how many of each caps go to which family.

7. After establishing the family members we now know that the Madolos have 2 AC supporters and 3 BP supporters, 5 family members so that makes 2 AC caps and 3 BP caps will go to the Madolos family. Leaving 4 AC caps and 5 BP caps behind.

8. The Machakas also have 5 family members but they have 2 BP supporters and 3 AC supporters which means that 2 BP caps and 3 AC caps will go to the Machakas family. Leaving behind 1 AC cap and 3 BP cap.

9. Subsequent eliminating the gaps in our data we established that the Mbele family had 4 members which is equivalent to the number of caps left. This tells us that since there is 1 AC cap left and 3 BP caps left that there are three BP supporters and 1 AC supporters. We cannot determine whose supports who because of insufficient information.

Summary

2 AC and 3 BP caps taken to Madolos family

3 AC and 2 BP caps taken to Machakas

1 AC and 3 BP caps taken to Mbeles

b) There is a general patten occurring here.

1. Everytime our gambler bets his doubles his bet next time he gambles.

2. Represent B=Bet so B1= first bet and B2= second bet and so on up until B(n+1)=nth term

3. Given B1=3; B2=6;B3=12 there is a general expression to represent this geometric series

B(n)=3(2)^n-1 the ‘^’ stands for raised to but to answer the question of expressing the B(n+1)

4. The expression is B(n+1)=3(2)^n

Summary

B(n+1)=3(2)^n