Two-Way Frequency Tables

I surveyed 100 athletes to determine if there is a relationship between people with preferences for 3 different subjects.

Question	Math	Science	Art
Soccer	|||||||||| |||	|||||||||	||||||||
Football	|||||||||| |||||||||| |||	|||||||||| |||||||	||
Baseball	|||||||||| |||	||||||||||	|||||

Question	Math	Science	Art	Total
Soccer	13	9	8	30
Football	23	17	2	42
Baseball	13	10	5	28
Total	49	36	15	100

Probability Questions

1. What is the probability of randomly selecting someone that plays soccer? P(Soccer)= $\frac{30}{100} = 0.30$

2. What is the probability of randomly selecting someone that likes art? P(Art)= $\frac{15}{100} = 0.15$

3. What is the probability of randomly selecting someone that plays baseball? P(Baseball)= $\frac{28}{100} =$

   0.28

4. What is the probability of randomly selecting someone that likes math? P(Math)= $\frac{49}{100} = 0.49$

5. What is the probability of randomly selecting someone that likes math or science? P(Math or

   Science)= $\frac{49}{100} + \frac{36}{100} = \frac{85}{100} = 0.85$

6. What is the probability of randomly selecting someone that likes math given they play football?

   P(Math| Football)= $\frac{23}{42} = 0.547$

7. What is the probability of randomly selecting someone that likes science given they play

   baseball? P (Science|Baseball)= $\frac{10}{28} = 0.357$

8. What is the probability of randomly selecting someone that plays football given they like math?

   P(Football| Math)= $\frac{23}{49} = 0.469$

9. What is the probability of randomly selecting someone that likes art given they play baseball?

   P (Art|Baseball)= $\frac{5}{28} = 0.179$

10. What is the probability of randomly selecting someone that plays soccer given they like math?

    P (Soccer|Math)= $\frac{13}{49} = 0.265$