Four hundred seventy-eight students in grades 4 through 6 in selected schools in Michigan, were asked the following question.

*Which of the following would make you popular among your friends? Rank in order.*

* *Making good grades*
* *Having lots of money*
* *Being good at sports*
* *Being handsome or pretty*

The table below lists the number of students (by gender) who gave the indicated factor a ranking of 1 (most important factor in making them popular amongst their friends).

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
|  |  | **Most Important Popularity Factor** | | | | | |
| **Gender** |  | | Grades | Money | Sports | Looks | **Row Totals** |
| Girl | | 55 | 17 | 38 | 141 |  |
| Boy | | 39 | 17 | 127 | 44 |  |
| **Column Totals** | |  |  |  |  |  |

1. What proportion of the total number of students considers looks to be the most important factor in making them popular amongst their friends? **Write your answer using probability notation, as a fraction and as a decimal.**
2. If we were to randomly select a student, what is the probability that the student would think Money is the most important factor in making them popular amongst their friends? **Write your answer using probability notation, as a fraction and as a decimal.**
3. Are boys more likely than girls to think that money is the most important factor in making them popular amongst their friends? **Write your answer using probability notation, as a fraction and as a decimal.**
4. Suppose we randomly select a student. What is the probability that the student is a boy? **Write your answer using probability notation, as a fraction and as a decimal.**
5. What is the probability that a student ranked grades as the most important factor in making him/her popular amongst his/her friends? **Write your answer using probability notation, as a fraction and as a decimal.**
6. If we randomly select a girl, what is the probability that she ranked sports as the most important factor in making **her** popular amongst her friends? **Write your answer using probability notation, as a fraction and as a decimal.**
7. What is the probability that a boy ranked looks as the most important factor in making **him** popular amongst his friends? **Write your answer using probability notation, as a fraction and as a decimal.**
8. What is the probability that a student is a girl **and** ranked grades as the most important factor in making her popular amongst her friends? **Write your answer using probability notation, as a fraction and as a decimal.**
9. What is the chance that a student is a boy and ranked grades as the most important factor in making him popular amongst his friends? **Write your answer using probability notation, as a fraction and as a decimal.**
10. What is the chance that a student who ranked sports as the most important factor making him or her popular amongst her or his friends is a girl? **Write your answer using probability notation, as a fraction and as a decimal.**
11. Find and **interpret** (in English) the following probabilities:

a) P(Money|Girl)

b) P(Girl|Money)

c) P(Sports)

1. P(Girl and Sports)