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?
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?
3. Are boys more likely than girls to think that money is the most important factor in making them popular amongst their friends?
4. Suppose we randomly select a student. What is the probability that the student is a boy?
5. What is the probability that a student ranked grades as the most important factor in making him/her popular amongst his/her friends?
6. If we randomly select a girl, what is the probability that she ranked sports as the most important factor in making him popular amongst her friends?
7. What is the probability that a boy ranked looks as the most important factor in making her popular amongst his friends?
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?
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?
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?
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)