

Grade 11 College Math**Day: Lesson 8 - 5****Unit: Probability****Topic: Interpreting Probability****# homework check: Lesson 8 - 4****# note: Interpreting Probability**

Probabilities are generally used to help predict future events however interpreting the data given can be problematic. All questions must be relevant to the context in which the data was collected, but sometimes events can be sensationalized by the media. When presented with data, one must always consider if the results portrayed are true.

For example, typical high school students gave the following answers about the types of music they enjoy. The percentages are given. Determine the probability that a new student will like:

Rock	Rock and Pop	Pop	neither
35	25	26	14

a) rock but not pop?

$$35\%$$

b) either rock or pop, but not both?

$$35 + 26 = 61\%$$

c) rock or pop or both

$$100 - 14 = 86\%$$

d) If there are 2400 students, what is the number of students that like either rock or pop, but not both?

$$61\% = 0.61$$

$$2400(0.61) =$$

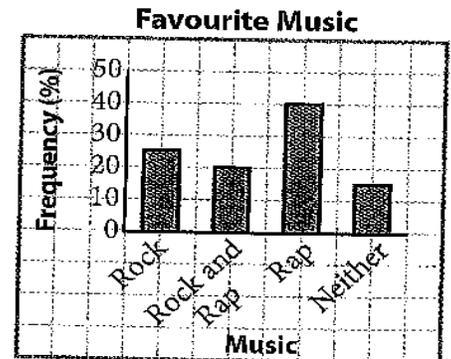
$$= 1464 \text{ students}$$

homework assignment: Lesson 8 - 5

Lesson 8 – 5:

1. Students at a school were asked if they like rock, rap, both rock and rap, or neither. The results are displayed on the graph shown. Determine the probability that a student likes: (3 marks)

- rock but not rap
- either rock or rap, but not both
- rock or rap or both



2. A football quarterback has completed 125 passes in 200 attempts this season. (4 marks)
- What percent of his passes has he completed?
 - If he attempts 30 passes in the next game, how many would we expect be completed?
3. After 12 games, a hockey team has 5 wins, 4 losses, and 3 overtime losses. Teams are awarded 2 points for a win, 1 point for an overtime loss, and no points for a loss. (3 marks)
- How many points does the team have after 12 games?
 - Predict how many points the team will have if the regular season has 82 games.
4. The girls' volleyball team has the following record: seven wins, four losses, and two ties. A win is worth 3 points, a loss is worth zero points, and a tie is worth one point. (3 marks)
- How many points does the team have after 13 games?
 - Predict how many points the volleyball team will have if they regular season has 20 games.
5. After half a season, a baseball player has a 0.300 batting average. (4 marks)
- What does this average mean?
 - If this player gets to bat 40 times in the next 10 games, how many hits would you expect him to get?

6. A study has shown that by age 14, one in four teenagers have tried smoking. Of those who try smoking, 36% become regular smokers. (8 marks)
- What is the probability that a person has not tried smoking by age 14?
 - What is the percent of people who have tried smoking do not become smokers?
 - What percent of the population have tried smoking by age 14, but are not smokers?
 - How many of 33 million Canadians do you estimate have tried smoking by age 14 and become smokers?
7. The number of women with MS (multiple sclerosis) has risen compared to the number of men. For those born in the 1930s, there were 1.9 females with MS for every male with the disease. For those born in the 1980s, there are now 3.2 women who have MS for every man with the disease. (6 marks)
- In the 1930s, what percent of those with MS were women?
 - In the 1980s, what percent of those who have MS are female?
 - Divide your answers in part a) by your answer in part b). Now divide 3.2 by 1.9. which of these answers appears to indicate a greater increase? Why?
8. A recent study suggests that 1 in 8 students who listen to music through headphones have irreparable hearing loss. (4 marks)
- Of 300 students, how many have suffered hearing loss?
 - If Greg knows 62 students have hearing loss in his school, what does this suggest about the number of students in his school?