MBF3C Date: _____

MEDIA STATISTICS & PROBABILITY

Probability and statistics are presented through the media in a variety of different contexts.

STATISTICS is the collection and analysis of data

STATISTICS are collected from real-life events / studies

Like probability, statistics help predict results of future events

EXAMPLES OF STATISTICS

opinion polls, Census data, Weather reports, Gambling odds, sports reports (team data, player data)

EXAMPLE **Favourite Music Statistics**

A local radio station surveyed 200 students from one high school to determine their favourite type of music. The results are shown in the table.

Music	% of Students
Rock	45
Rap	35
Country	20

a) Express each percent as a decimal, and as a fraction in lowest terms.

Rock

$45\% = \frac{45}{100}$

$= 0.45$

$\frac{45}{100} = \frac{9}{20}$

Rap

$35\% = \frac{35}{100}$

$= \frac{7}{20}$

$= 0.35$

Country

$20\% = \frac{20}{100}$

$= \frac{1}{5}$

$= 0.20$

b) If there are 4000 high school students in the city, how many of them would you expect to like each type of music?

Rock

45% of 4000

$= 0.45 \times 4000$

$= 1800$

Rap

35% of 4000

$= 0.35\ (4000)$

$= 1400$

Country

20% of 4000

$= 0.2\ (4000)$

$= 800$

c) Is it possible that the poll might not be accurate? What factors could have influenced the responses?

Yes. Influencing factors could include
- type of music played by station doing the survey.
- popular music teachers
- etc.

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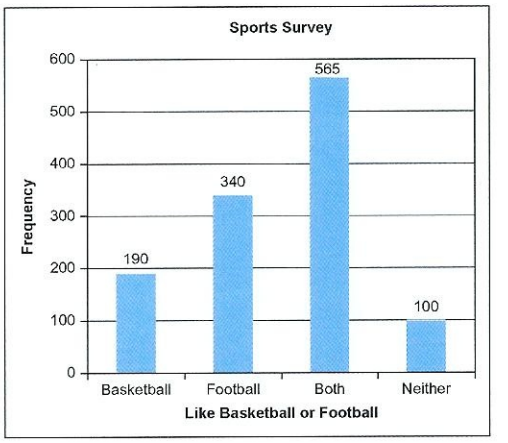
EXAMPLE **Statistics and Probability**

All students at a high school were surveyed about two sports. The results are shown in the graph.



a) Express each as a decimal.

Basketball $\frac{190}{1195} = 0.16$

Football $\frac{340}{1195} = 0.28$

Both $\frac{565}{1195} = 0.47$

Neither $\frac{100}{1195} = 0.08$

b) What is the probability that a student chosen at random likes basketball, but not football?

$P(\text{basketball}) = \frac{190}{1195} = 16\%$

c) What is the probability that a student chosen at random likes either basketball or football, but not both?

$P(\text{basketball OR football}) = \frac{(190+340)}{1195}$

$= \frac{530}{1195}$

$= 0.44$ or 44%

d) What is the probability that a student chosen at random likes basketball or football or both

$P(\text{Basketball, Football, or both}) = \frac{(190+340+565)}{1195}$

$= \frac{1095}{1195}$

$= 92\%$