

# Random sampling word problems

name \_\_\_\_\_

class \_\_\_\_\_

Solve the following word problems.

- 1 A small town has 4921 households. The local government is debating on whether or not a new school is needed. In a random sample, 153 out of 300 households have at least one child under the age of 5 years.

A. Approximately how many households in the entire town have at least one child under 5 yrs old?

$$(153 \div 300) \times 4921 = 2510 \text{ households approx}$$

B. Should the local government build another school? Why or Why not?

Yes, there are a lot of new, young children in the town or No, the sample might be too small and they need more data.

- 2 In a community, the committee wants to check all the households have the sufficient resources. In a random sample, 24 out of 60 households told it is having enough resources and happy, the others say it is not. The community has total of 1200 households.

A. About how many households in the community feel it is not having enough resources?

$$60 - 24 = 36$$

$$(36 \div 60) \times 1200 = 720 \text{ households are not happy}$$

B. Do you think this is a valid sample and can it be used to make proper inferences? Why or Why not?

No, the sample is small and it could be considered bias since they them personally rather than anonymously.

- 3 The Principal of summer camp would like to know the interests of students from 6 different schools having 5500 students total. Since there are too many students to survey they decided to do a random sample at each school. The results are shown below:

School	Foot ball	Tennis	Basket ball	Hockey	Soccer	Base ball	Total
1	24	16	20	8	4	10	82
2	20	28	10	4	10	12	84
3	25	20	16	10	14	11	96
4	16	18	14	12	12	8	80
5	18	26	8	7	10	9	78
6	9	18	15	12	12	14	80
Total	112	126	83	53	62	63	500

A. Based on the results, approximately what percent of the students like tennis?

$$(126 \div 500) \times 5500 = 1386$$

$$(1386 \div 5500) \times 100 = 25\% \text{ students like tennis.}$$

B. About how many students in the total students like hockey and soccer combined?

$$53 + 62 = 115$$

$$(115 \div 500) \times 5500 = 1265 \text{ students like hockey and soccer combined.}$$

C. If 730 students interested in Tennis, about how many students would show up their interest for Base ball?

about 365 students.