

**Problems For You To Do (Sections 1.1 – 1.5)**

1. Name four major components of a typical statistical study.
2. More than 80% of the 200 phone-in responses to a question posed on a local radio talk show were in favour of sending the “boat people” back. Is this strong evidence that a majority of Lower Mainland residents support the position of sending the “boat people” back? Briefly explain.
3. Identify the variable in each of the following as “discrete” or “continuous”:
  - a) the **time** it takes you to fall asleep at night.
  - b) the **weight** of a newborn pup.
  - c) the **size** of the litter of puppies.
4. Identify the **level of measurement** for each of the following:
  - a) telephone area codes.
  - b) annual incomes.
  - c) the body temperature in °C of patients with the flu.

5. What is the **level of measurement** for the response to:

- a) Question 40?
- b) Question 41?

MACLEAN'S/CBC POLL	
40. How do you feel about the amount of tax you pay	%
Very upset.....	31
Somewhat upset.....	46
Not very upset.....	15
Not upset at all.....	8
41. (Asked of those who answered "very upset" or "somewhat upset" to question 40) Which tax do you get the most upset about?	
Personal income tax.....	37
GST and sales taxes generally.....	49
Property and municipal taxes.....	12
Don't know/refused.....	2

6. As part of the planning process for the Vancouver International Airport expansion, the following information is required for each departing passenger:
  - a) Type of transport taken to airport
  - b) Length of time to get from home to airport
  - c) No. of non-airline passengers accompanying the passenger into the airport
  - d) Travel destination
  - e) No. of minutes between arrival at airport and scheduled flight departure
  - f) No. of pieces of checked luggage
  - g) Total weight of luggage

Identify the variables in Parts a), b), c), d) above as **quantitative** or **qualitative**.

Identify the variables in Parts e), f), g) above as **discrete** or **continuous**.

Identify the *level of measurement* (**interval, ratio, ordinal, nominal**) for Parts d), e), f), g) above.

7. To obtain a representative sample of passengers, the following sampling schemes are considered. Identify each as either **random**, **systematic**, **stratified** or **cluster** sampling. Assume the airport operates from 5:00 a.m. to 12:00 p.m.
- From 5:00 a.m. on, every 10th passenger is interviewed.
  - Every hour, the first 50 people in that hour are interviewed.
  - Two dice are rolled when each passenger arrives. If a 12 comes up, interview the passenger.
  - Every third hour, 50 passengers are randomly selected in that hour.
8. Classify each quantity as **continuous** or **discrete**:
- The number of shares sold each day in the stock market.
  - The temperature recorded each hour at a weather station.
  - The annual snowfall (in centimeters) at Whistler.
  - The number of season pass holders at Whistler.
9. Classify the data as **qualitative** or **quantitative**:
- Age
  - Marital status
  - Income classification (high, middle or low)
10. Determine which level of measurement is most appropriate – nominal, ordinal, interval, or ratio.
- Olympic medals (Gold, silver, bronze)
  - Countries that have hosted the Olympic Games
  - Olympic record times
  - Years in which the Olympics have been held
11. Identify the type of sampling used: random, systematic, stratified or cluster
- One student is selected from each high school homeroom to sit on the student council.
  - Every 100<sup>th</sup> customer at the movies receives a free sample of popcorn.
  - A quality control inspector with McDonalds picks one location in each town and interviews all the customers.
  - The name of each student buying a parking pass goes into a hat for a draw for a free pass.
12. Identify the variable in each example as **quantitative** or **qualitative**:
- the number of passengers in each car crossing the Port Mann Bridge between 5:00 a.m. and 8:00 a.m.
  - the type of car for each car crossing the bridge
  - the speed of each car crossing the bridge
13. Identify the variable in each example as **discrete** or **continuous**:
- the fuel consumption (in litres/100 km) of a car
  - number of km driven before the first oil change of a car
  - number of km in the car manufacturer's warranty

14. Identify the **level of measurement** for each of the following:
- a) the years in this century (e.g., 1926, ...) that a "Category 4" hurricane (like Hurricane Floyd) has hit the coast of the USA
  - b) the maximum wind speed in a hurricane
  - c) the number of people evacuated during a hurricane
  - d) the type of beer described by:
    - (i) Molson      Labatt      Coors      Warsteiner
    - (ii) No Alcohol Lite      Regular      Premium Strength

15. What is another name for **qualitative** data?

16. Select the **most appropriate** response:

Generally, a *parameter* is

- a) the mean of a population
- b) the median of a population
- c) a numerical quantity describing some feature of a population
- d) all of the above
- e) none of the above

17. Define briefly what is meant by a **statistic**.

18. Identify the variable in each of the following examples as **discrete** or **continuous**:

- a) the age of each patient in a study
- b) the change in height of a hemlock tree in one year
- c) the number of emergency ward admissions per day

19. Identify the **level of measurement** in each of the following:

- a) the number of goals scored by Markus Naslund
- b) the type of car described as:
  - (i) subcompact, compact, intermediate or full size
  - (ii) Honda, Mazda, Toyota, Subaru or Suzuki

20. In question 2 of the MacLean's CBC Poll, what is the

- a) variable type
- b) level of measurement

MACLEAN'S/CBC POLL	
2. Are you more or less optimistic about the future than you were a decade ago	
Much more optimistic.....	9
A little more optimistic.....	23
Feelings not changed much.....	27
A little more pessimistic.....	28
Much more pessimistic.....	12

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- 21. a) Define in general terms what is meant by a "parameter" in statistics.
- b) Give three examples of a parameter.

### Stressed Out?

22. What is the **level of measurement** of the response to

- a) marital status?

**Marital Status**

Widowed  
 Married or living with .....  
 Single or never wed.....  
 Divorced.....  
 Separated.....

- b) Question 2 to the right

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2. How often have you felt that you were unable to control the important things in your life?	
	0 = never
	1 = almost never
<input type="checkbox"/>	2 = sometimes
	3 = fairly often
	4 = very often
	5 = never