

Part A: Multiple Choice

1. Which of the following is *not* a possible source of bias.
 - A. Leading questions
 - B. Untruthful replies to questions
 - C. Over-representing part of the population
 - D. People wanting to participate in the survey

2. A grocery store manager discovered that 34 out of 52 customers bought milk. What is the sample proportion?
 - A. 0.65
 - B. 65%
 - C. 1.53
 - D. 53%

3. Alex wanted to know how many lobsters a fisherman typically caught in a day. He selected 20 boats and recorded the number of lobster each boat had caught as follows:

5	8	12	22	7	9	31	14	18	12
11	8	7	16	13	14	13	20	5	15

What is the sample mean of this data?

- A. 13
 - B. 26
 - C. 130
 - D. 260
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4. When Mrs. Leeman went to Toronto to see the races, she saw a booth where she could vote for her favorite racer. The sampling method being used would be –
 - A. Convenience
 - B. Self-selected
 - C. Cluster
 - D. Systematic

5. In a class, the mean number of hours that a student spends sleeping per week is 9 hours. If the standard deviation is 2 hours and the data is normally distributed, what percentage of students slept between 7 hours and 11 hours?

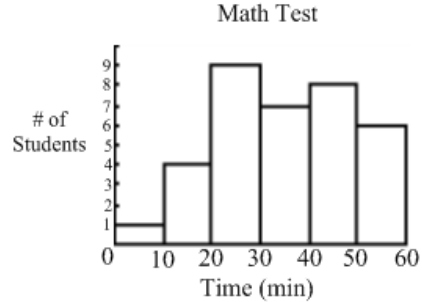
- A. 68%
- B. 75%
- C. 95%
- D. 99%

6. Which basketball player, represented by the box-and-whisker plots, is the most consistent?

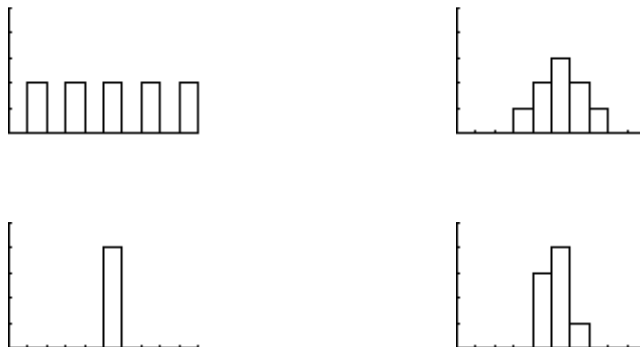


7. The histogram shown represents the time that was taken for students to write a math test. How many students wrote the test?

- A. 30
- B. 35
- C. 45
- D. 58

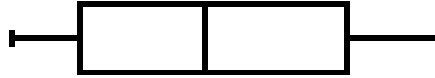


8. Which of the following graphs would represent a set of data with a large standard deviation?



9. What values would represent the middle 50% of this set of data shown by the box-and-whisker plot?

- A. 4 to 15
- B. 8 to 23
- C. 15 to 28
- D. 4 to 28



10. Sonya earns 5% commission on each sale she makes. If she makes a sale of \$300, how much has she earned?

- A. \$15
- B. \$315
- C. \$450
- D. \$1500

11. Which of the following is most likely to be a fixed expense?

- A. Entertainment
- B. Power bills
- C. Rent
- D. Food

12. Shawn buys a pair of pants for \$46. The tax in NB is 15%. What is the total cost of Shawn's purchase?

- A. \$6.90
- B. \$15.00
- C. \$46.00
- D. \$52.90

13. What is the amount of interest earned on an investment of \$1000, if it is invested for 5 years at a simple annual interest rate of 10%?

- A. \$50
- B. \$100
- C. \$500
- D. \$1500

14. Interest that is calculated semi-annually is calculated...

- A. Daily
- B. Twice per year
- C. Every week
- D. Once per year

15. The amount of money that is initially invested is referred to as the

- A. Annuity
- B. GIC
- C. Final value
- D. Principal

16. On a fair die, what is the probability of rolling a 2 or a 6?

- A. $\frac{1}{36}$
- B. $\frac{1}{6}$
- C. $\frac{1}{3}$
- D. $\frac{2}{3}$

17. A bag has 20 jelly beans – 2 red, 7 green and 11 black. Harry removes one randomly, does not replace it, and removes a second randomly. What is the probability of removing 2 black jelly beans?

- A. $\frac{1}{10}$
- B. $\frac{11}{20}$
- C. $\frac{11}{20} \times \frac{10}{19}$
- D. $\frac{11}{20} \times \frac{11}{19}$

18. Mark goes to buy a new truck. He has narrowed his choice down to three different colors, regular or extended cab, and standard or automatic transmission. How many options does Mark have?

- A. 3
- B. 6
- C. 7
- D. 12

19. A bag contains 20 green sticks, 11 red sticks, and 5 blue sticks. Suppose that a stick is removed at random from the bag. What is the probability that the stick is blue?

- A. $\frac{5}{36}$
- B. $\frac{20}{36}$
- C. $\frac{11}{36}$
- D. $\frac{31}{36}$

20. Joe is in a class with 18 students and Susan is in a class with 27 students. One person will be chosen from each class as the class representative. What is the probability that the people chosen will be Joe and Susan?

- A. $\frac{1}{45}$
- B. $\frac{2}{45}$
- C. $\frac{1}{18} + \frac{1}{27}$
- D. $\frac{1}{18} \times \frac{1}{27}$

21. If the probability of an event happening is 0.25, then the probability of the event *not* happening is

- A. 0.25
- B. 0.50
- C. 0.75
- D. 1.00

24. Which of the following represents a permutation?

- A. Three grade eleven students are chosen to attend a youth conference.
- B. The first-, second-, and third-place winners are awarded from a field of eight runners.
- C. There are five identical basketballs in a rack. The coach selects three of them for practice.
- D. There are eight AA batteries left in a package. Two are removed and used to replace the batteries in the remote control.

25. When Bill plays the Super 7 Lottery, he must correctly choose a group a seven numbers from one to 47. In how many ways can he choose his numbers?

- A. 47!
- B. 7!
- C. ${}_{47}C_7$
- D. ${}_{47}P_7$

Part B: Open Response

1. A high school class wants to choose between downhill skiing and snowmobiling for its outing. Would a census or a survey be a better choice? Explain why.

2. The following data represents the amount of money spent per week at the arcade. Arrange this information into a stem and leaf plot.

2 4 4 5 7 7 8 8 8 9
 9 9 10 10 10 11 12 12 13 14
 14 15 16 17 18 22 24 25 29 32
 35 37 42 48

3. Fred did a study of the time spent by diners at his restaurant.

Time (in minutes) Spent on Weekends								
15	19	22	26	27	33	37	39	42
43	43	45	45	45	48	58	63	69
69	72	75	82	99	110	116	125	125

- a. Create a frequency table of this information.

Bin	Frequency
0-20	
20-40	
40-60	
60-80	
80-100	
100-120	
120-140	

- b. Use your frequency table to construct a histogram of this data. (don't forget to number and label the axes)
- c. Based on the histogram, what is the typical range of times that diners spend at Fred's restaurant?

4. James works as a car salesman. He earns 6% commission on the first \$10000 dollars sold. Any amount over \$10000, he will earn 8%. He sells a car worth \$18000.

- a. How much has he earned on the first \$10000?
- b. How much has he earned for the next \$8000?
- c. How much did he earn in total?

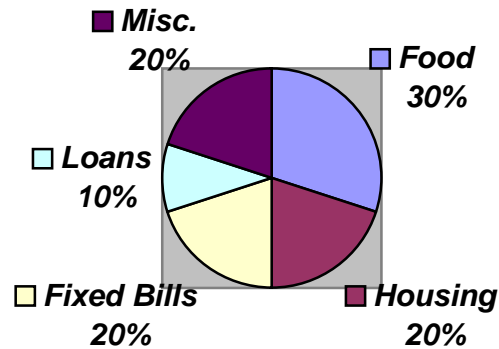
5. Angela has a part-time job at a restaurant. She works 40 hours a week at the rate of \$8.25. She is paid weekly.
- Calculate her weekly gross pay.
 - Determine the EI premium if it is a rate of 1.87%.
 - Use the chart provided to determine the CPP deduction.
 - Use the above values to calculate the taxable income
 - Use the chart provided to determine the Federal tax deduction – based on the taxable income. Use claim code 3.
 - Use the chart provided to determine the Provincial tax deduction – based on the taxable income. Use claim code 3.
 - Calculate Angela’s net pay.

6. For the following purchase, complete the table showing the first 4 months of payments.

		<i>1.7% (0.017)</i>	<i>3% (0.03)</i>
Month	Balance	Interest Charges	Minimum Payment
1	\$1,540.00		
2			
3			
4			

7. John has borrowed \$2000 from the bank at a rate of 8% for a 5 year period. He makes 12 payments a year worth \$40.55 each.
- How many payments does he make in total?
 - Calculate the total amount that John will have paid at the end of the 5 years.
 - What is the amount of interest that John has paid?

8. Calculate the amount of a \$5000 investment after 3 years if it is invested at a compound annual interest rate of 7%.
9. The pie chart represents the budget of a family whose monthly income after deductions is \$3200.



- a. How much is the family's mortgage payment?
 - b. How much do they spend on food?
10. The letters of the word MATHEMATICS are put into a bag. A letter is drawn out randomly.
- a. What is $P(\text{selecting an M})$?
 - b. What is $P(\text{Selecting an S})$?
 - c. What is $P(\text{M or S})$?
11. Sam flipped a coin 40 times and got tails 17 times.
- a. What is the theoretical probability of getting tails with a fair coin?
 - b. Based on Sam's results, what is the experimental probability of getting tails?
12. A shirt maker offers three colors (red, blue, and yellow) and two sleeve lengths (long or short). Create a tree diagram to show the different possible shirts that can be made.
13. You want to order pizza for your party. Greco has a special, which consists of a pizza with salami, hamburger, or pepperoni. The special can be ordered with only one, two or three toppings. Prepare a systematic list to find the total number of choices.