

Section 1:

1. Simplify $1 - \frac{7}{8} \div \frac{21}{3} + \frac{8}{64}$

2. Simplify $36p^2 + 12p + 1$

3. The expression $y = x^2 - 16x + 64$ where $x \neq 8$ is:

- a) Always positive
- b) Always zero
- c) Always negative
- d) Sometimes positive, sometimes negative

4. Solve for x: $|5x - 2| > 8$

5. Find the slope and y-intercept of the line: $3x - 2y = 5$

6. Solve: $\log(x + 3) = 2$

7. Evaluate the expression:

$$\sum_{n=1}^6 n^2 - 2n - 8$$

8. A collection of 33 coins, consisting of 5-cent coins (nickels), 10-cent coins (dimes), and 25-cent coins (quarters), has a value of \$3.30. There are three times as many nickels as quarters, and one-half as many dimes as nickels. How many coins of each kind are there?

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Section 2:

1. Graph the following function: $y = x^2 - 4$

2. Write a short essay outlining any significant information that you can extract from the following tables (min. 250 words, max. 500 words).

The following figures were excerpted from: Statistics Canada, Census of Canada

Chart 1: Proportion of Renter Households by Province (data in: %)

Province	1951	1991
Quebec	51%	44%
Ontario	30%	36%
British Columbia	30%	36%
Alberta	29%	36%
Manitoba	29%	33%
Nova Scotia	24%	29%
Saskatchewan	26%	29%
Prince Edward Island	18%	26%
New Brunswick	29%	26%
Newfoundland	13%	21%

Chart 2: Proportion of Households made up of a person living alone (data in: %)

Year	Owners	Renters
1951	7%	9%
1961	8%	13%
1971	8%	21%
1981	10%	36%
1991	14%	39%

Chart 3: Proportion of Households by living circumstances (data in: %)

Single-detached houses	1951	1971	1991
Owned	56%	52%	51%
Rented	11%	8%	6%
Other Types			
Owned	10%	9%	12%
Rented	23%	32%	31%

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Chart 4: Proportion of people renting by age (data in: %)

Year	Under 35	35 - 44	45-64	65 plus	All households
1951	52%	36%	28%	23%	34%
1961	54%	33%	26%	23%	34%
1966	60%	33%	27%	28%	37%
1971	64%	33%	28%	32%	40%
1976	57%	31%	27%	36%	38%
1981	56%	28%	25%	37%	38%
1986	57%	30%	25%	36%	37%
1991	58%	32%	25%	34%	37%

Section 3:

1. If kilometers per litre goes up by 50%, what happens to litres per kilometer:
 - a) Goes up by 50%
 - b) Goes down by 50%
 - c) Goes down by $\frac{2}{3}$
 - d) Goes down by a third
 - e) Cannot say from the data given

2. *The following group of questions (Q1 – Q3) is based on different sets of **conditions** (below). Drawing a simple diagram may be helpful in answering some of the questions.*

A store is creating a window display featuring four hats and three scarves. The only hats considered are A, B, C, D, E, and F and the only scarves that are being considered are J, K, L, M, and N.

- **If A is displayed, then neither B nor L can be displayed;**
- **B is displayed only if D is displayed;**
- **C cannot be displayed unless J is displayed;**
- **D can be displayed only if K is displayed;**
- **If L is displayed, then M must be displayed;**
- **F cannot be displayed unless D is not displayed.**

Based on these **conditions**, determine the answers to the following questions:

- Q1. What is a possible window display of hats?
- Q2. If F is displayed, can either L or M be displayed?
- Q3. Which of the following cannot be displayed together: B and K, B and F, B and M, E and F, E, J and M?