

QUANTITATIVE METHODS

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Assignment 12

This assignment is due **Wednesday March 16**. A copy of your Excel work must be send by *e-mail*.

Questions 1 and 2 are to be done by hand, while question 3 is to be done with Excel.

Question 1 (10 points)

Here is the probability distribution for the number of teachers absent on a given day at SLC.

x	0	1	2	3	4
$p(x)$	0.41	0.37	0.16	0.05	0.01

- Find the probability that at least 2 teachers are absent.
- How many teachers are expected to be absent?
- Find the standard deviation of this probability distribution.
- Draw a histogram for this probability distribution.

Question 2 (5 points)

Consider the following distribution, where x represents the amount of money (in \$) that you could win with a Quebec 49 lotto ticket and $p(x)$ the probability of the event.

Ticket	x	$p(x)$
6/6	1 000 000	0.00000072
5/6+	50 000	0.000000429
5/6	500	0.000018450
4/6	50	0.000968620
3/6	5	0.017650404
No win	0	0.981362455

- How much money can you expect to win with a ticket? (Find the mean.)
- A Quebec 49 lotto ticket costs \$0.50. What percentage of this is given as prize money and what percentage is kept by Lotto Quebec?

This question is to be done using Excel

Question 3 (10 points)

Here is the probability distribution for the number of magazine subscriptions sold per evening by a door-to-door salesman.

x	0	1	2	3	4	5	6	7
$p(x)$	0.08	0.21	0.26	0.21	0.13	0.07	0.03	0.01

- Find the probability that the salesman will sell more than 4 magazine subscriptions this evening.
- Find the probability that the salesman will sell at least one magazine subscription this evening.
- Compute μ , the expected number of magazine subscriptions sold by the salesman during an evening
- Compute σ , the standard deviation of the number of magazine subscriptions sold by the salesman during an evening.
- Sketch a graph of the probability distribution.