

## MATHEMATICS 201-510-LW

Business Statistics

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# II – Organizing Data

1. The data below gives the day of occurrence for a sample of 50 absences of college students from classes.

F	F	Tu	F	F	F	Th	M	M	Th
Tu	F	M	F	F	M	F	Th	Th	F
M	Tu	M	Th	M	F	M	Tu	W	M
Th	Tu	W	F	Th	F	Tu	F	W	Th
M	M	Th	Tu	Tu	Th	Th	F	Tu	M

- a) Construct a relative frequency distribution table.  
b) Construct a bar graph.  
c) Construct a circle graph.
2. A random sample of Quebecers gave their favorite fast-food restaurant. Here are the results.

Ashton	Ashton	Burger King	McDonald's	McDonald's	McDonald's	McDonald's
Valentine	Valentine	Valentine	Burger King	Ashton	McDonald's	McDonald's
McDonald's	Valentine	Burger King	McDonald's	McDonald's	Ashton	Ashton
Ashton	Ashton	McDonald's	Burger King	McDonald's	Ashton	Valentine
Burger King	Ashton	McDonald's	McDonald's	Burger King	McDonald's	Ashton
McDonald's	McDonald's	Burger King	Ashton	Burger King	Burger King	Ashton

- a) Construct a relative frequency distribution table.  
b) Construct a pareto diagram.  
c) Construct a circle graph.
3. Sketch a time plot for the homicide rate in Canada (per 100 000 population) for the years 1980-200. Here is the data:

Year	Rate	Year	Rate	Year	Rate
1980	2.41	1987	2.52	1994	2.04
1981	2.6	1988	2.14	1995	1.99
1982	2.65	1989	2.4	1996	2.11
1983	2.68	1990	2.67	1997	1.92
1984	2.6	1991	2.69	1998	1.84
1985	2.71	1992	2.57	1999	1.76
1986	2.17	1993	2.19	2000	1.77

4. In a study on family life, a sociologist electronically monitored a number of randomly chosen homes to determine the number of hours the family television was on during a 24-hour period. Here are the results.

5.6	5.8	6.3	6.6	6.8	7	7.1	7.4	7.8
8	8.5	8.6	8.7	8.9	9.0	9.2	9.3	9.3
9.5	9.5	9.6	9.7	9.8	9.8	9.9	10.1	10.1
10.3	10.5	10.5	10.8	11.1	11.4	11.5	11.7	11.8
12.2	12.4	12.6	12.7	13.3	13.5	13.8	13.9	14.8

- Construct a relative frequency distribution table.
  - Construct a histogram.
  - Describe the shape of the histogram.
5. The CAA recently did a survey to determine the annual mileage done by Canadians with their cars. Here are the results, in kilometers, for the year 2007.

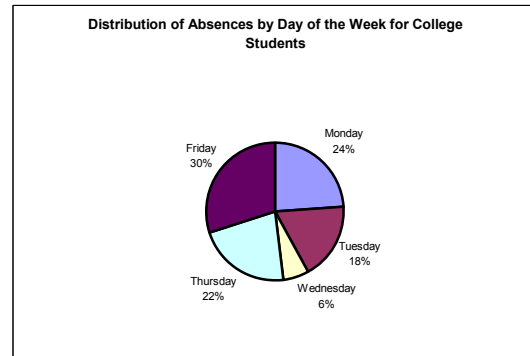
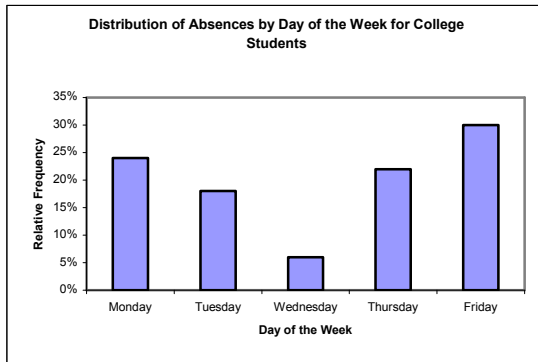
5201	9852	11236	11420	12477	12987	13412	13569	13598	14220
14589	14680	14697	14789	14874	15002	15213	15230	15556	15557
15637	15763	15883	15899	16032	16211	16415	16433	16648	16700
16903	16973	17131	17445	17676	17736	18086	18405	18498	18513
18566	18604	18727	18896	19062	19130	19137	19190	19210	19736
19749	19774	19800	19908	20125	20125	20159	20168	20189	20378
20424	20450	20506	20676	20975	21006	21017	21056	21158	21269
21388	21568	22148	22331	22344	23569	23670	24620	25021	26410
26540	27250	27658	27891	29410	29510	31210	31459	31988	33002
34023	35009	35260	36215	42450	44230	48190	49222	54233	58106

- Construct a relative frequency distribution table.
  - Construct a histogram.
  - Describe the shape of the histogram.
6. Do questions 1 to 5 with Excel. The data can be found on my website.

# ANSWERS

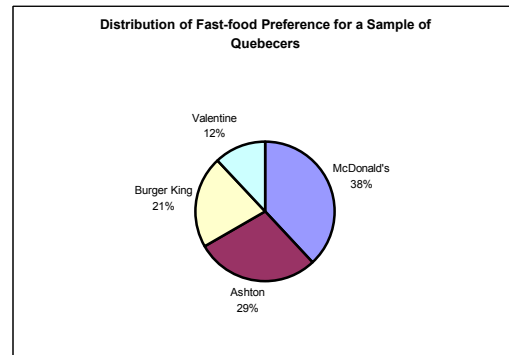
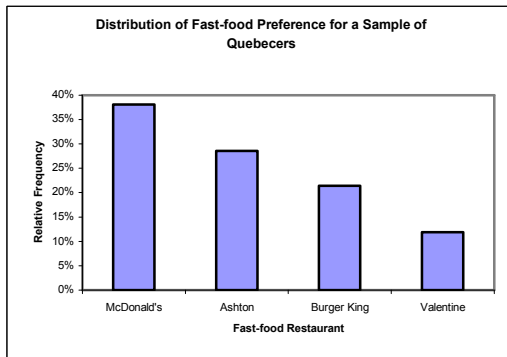
1.

Distribution of Absences by Day of the Week for a Sample of College Students		
Day of Week	Frequency	Relative Frequency
Monday	12	24%
Tuesday	9	18%
Wednesday	3	6%
Thursday	11	22%
Friday	15	30%
<i>Total</i>	50	100%

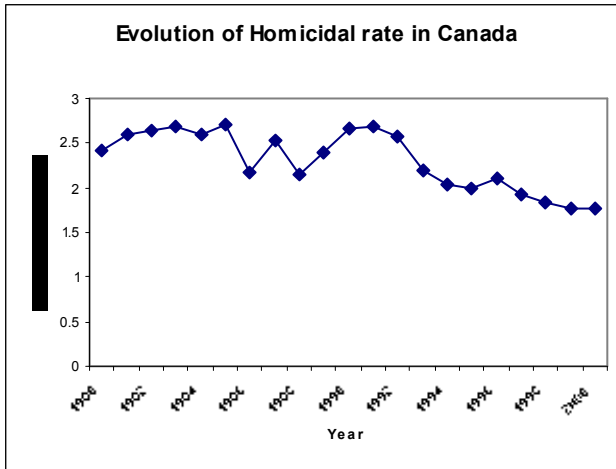


2.

Distribution of Fast-food Preference for a Sample of Quebecers		
Fast-food Restaurant	Frequency	Relative Frequency
McDonald's	16	38%
Ashton	12	29%
Burger King	9	21%
Valentine	5	12%
<i>Total</i>	42	100%

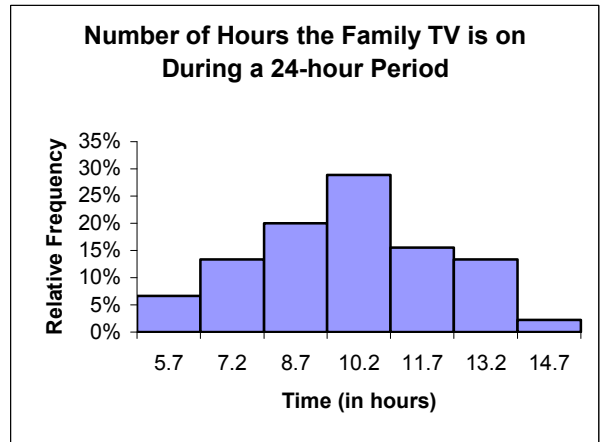


3.



4.

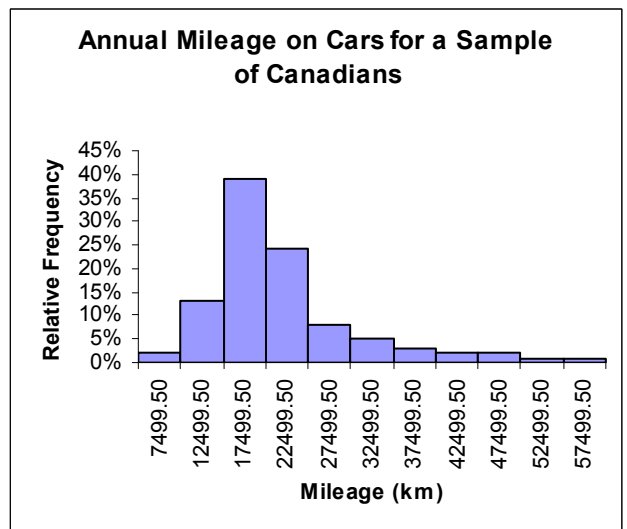
Time (hours)	Frequency	Relative Frequency	Midpoint
5.0 to 6.4	3	7%	5.7
6.5 to 7.9	6	13%	7.2
8.0 to 9.4	9	20%	8.7
9.5 to 10.9	13	29%	10.2
11.0 to 12.4	7	16%	11.7
12.5 to 13.9	6	13%	13.2
14.0 to 15.4	1	2%	14.7
<b>Total</b>	<b>45</b>	<b>1</b>	



c) Symmetrical Histogram

5.

Mileage (km)	f	Relative Frequency	Midpoint
5000 to 9999	2	2%	7499.5
10000 to 14999	13	13%	12499.5
15000 to 19999	39	39%	17499.5
20000 to 24999	24	24%	22499.5
25000 to 29999	8	8%	27499.5
30000 to 34999	5	5%	32499.5
35000 to 39999	3	3%	37499.5
40000 to 44999	2	2%	42499.5
45000 to 49999	2	2%	47499.5
50000 to 54999	1	1%	52499.5
55000 to 59999	1	1%	57499.5
<b>Total</b>	<b>100</b>	<b>1</b>	



c) Histogram is skewed to the left