Math 20-2 **Name** KEY

Worksheet on 5.1(Exploring Data) & 5.2 (Histograms & Polgyons)

1. Joel researched the average daily temperature in Lloydminster SK.

Month	Jan.	Feb.	Mar.	Apr.	May	Jun.	Jul.	Aug.	Sep.	Oct.	Nov.	Dec.
average daily temp (°C)	-10.0	-17.5	-5.0	3.7	10.7	14.3	20.1 MAX	14.0	9.8	4.8	-5.8	-14.8 MIN

Determine the median, mean, and range of the average daily temperatures in Lloydminster.

RANGE = MAX - MIN
= 20.1 - (-14.8)
= 34.9

$\bar{x} = \mu = 2.0$ MEDIAN = 4.25

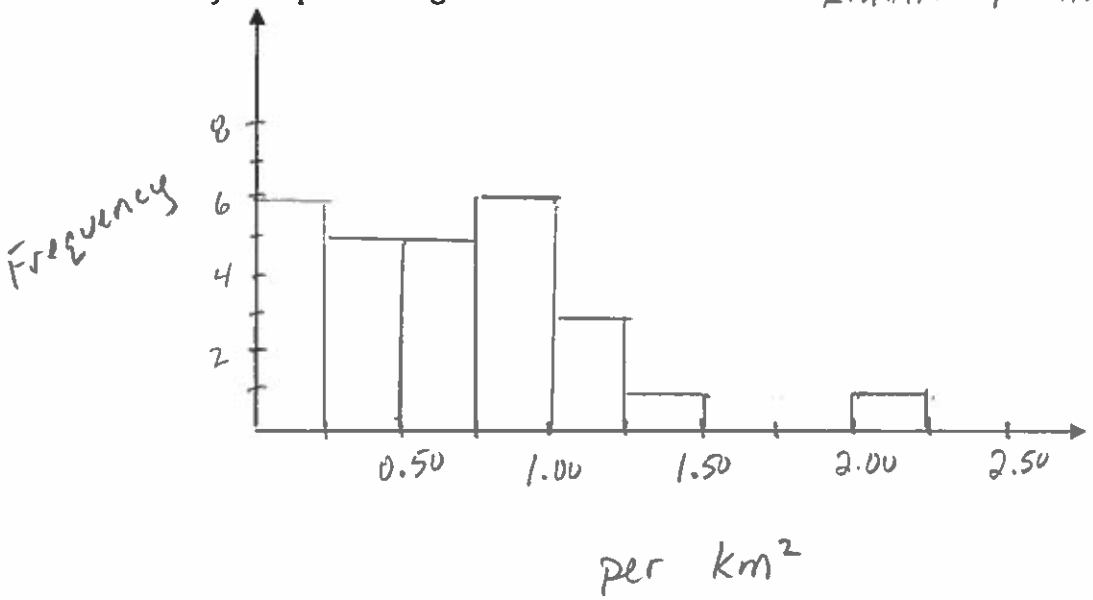
2. Environment Canada compiled data on the number of lightning strikes per square kilometre in Saskatchewan and Manitoba towns from 1999 to 2008.

~~2.03~~ ~~1.31~~ ~~0.25~~ ~~1.03~~ ~~1.20~~ ~~0.17~~ ~~0.43~~ ~~0.80~~ 0.72
~~0.99~~ ~~1.01~~ ~~0.24~~ ~~0.94~~ ~~0.92~~ ~~0.09~~ ~~0.46~~ ~~0.58~~ ~~0.49~~
~~0.86~~ ~~0.71~~ ~~0.05~~ ~~0.81~~ ~~0.63~~ ~~0.01~~ ~~0.40~~ ~~0.00~~ ~~0.52~~

a) Using an interval width of 0.25 and starting at 0.00, complete the frequency table.

Lightning Strikes/km²	Tally	Frequency
0.00 – 0.24	𝍸 |	6
0.25 – 0.49	𝍸	5
0.50 - 0.74	𝍸	5
0.75 - 0.99	𝍸 |	6
1.00 - 1.24	|||	3
1.25 - 1.49	|	1
1.50 - 1.74		0
1.75 - 1.99		0
2.00 - 2.24	|	1
2.25 - 2.49		

b) Graph a histogram with the data above. LIGHTNING STRIKES



3. Environment Canada compiled data on the number of lightning strikes per square kilometre in Saskatchewan and Manitoba towns from 1999 to 2008.

2.03	1.31	0.25	1.03	1.20	0.17	0.43	0.80	0.72
0.99	1.01	0.24	0.94	0.92	0.09	0.46	0.58	0.49
0.86	0.71	0.05	0.81	0.63	0.01	0.40	0.00	0.52

a) Complete the frequency table using an interval width of 0.50 and start at 0.00

Lightning Strikes/km²	Tally	Frequency
0.00 – 0.49	𝍸 𝍸 I	11
0.50 – 0.99	𝍸 𝍸 I	11
1.00 – 1.49	IIII	4
1.50 – 1.99		0
2.00 – 2.49	I	1

b) Which range of data has no entries? 1.50 – 1.99

4. Environment Canada compiled data on the number of lightning strikes per square kilometre in Ontario towns from 1999 to 2008.

3.60	2.11	0.96	0.65	2.38	1.90	0.72	0.63
3.47	2.04	0.90	0.65	2.25	1.33	0.70	0.38
2.53	1.90	0.85	0.65	2.25	1.13	0.66	0.19

Create a frequency table that starts at 0.00 and has a width of 1.00.

Lightning Strikes (per km²)	**Tally**	**Frequency**
0.00 – 0.99	𝍸 𝍸 11	12
1.00 – 1.99	IIII	4
2.00 – 2.99	𝍸 I	6
3.00 – 3.99	II	2

5. A company measured the lifespan of a random sample of 40 batteries in their MP3 players. Times are in hours.

7.8	11.0	10.5	8.8	9.1	9.4	11.2	9.4	8.6	9.0
9.3	8.5	7.9	9.1	7.1	9.3	9.4	9.7	10.6	8.5
9.2	8.2	7.4	8.8	8.6	8.0	8.0	11.1	9.2	11.4
8.2	9.6	8.5	10.5	10.7	9.5	11.4	8.2	9.7	8.5

If the interval width is 1.0 and starts at 6.5, what is the last interval?

6.5 – 7.4
7.5 – 8.4
8.5 – 9.4
9.5 – 10.4
10.5 – 11.4 LAST
11.5 – 12.4

6. The Edmonton Oilers Fans

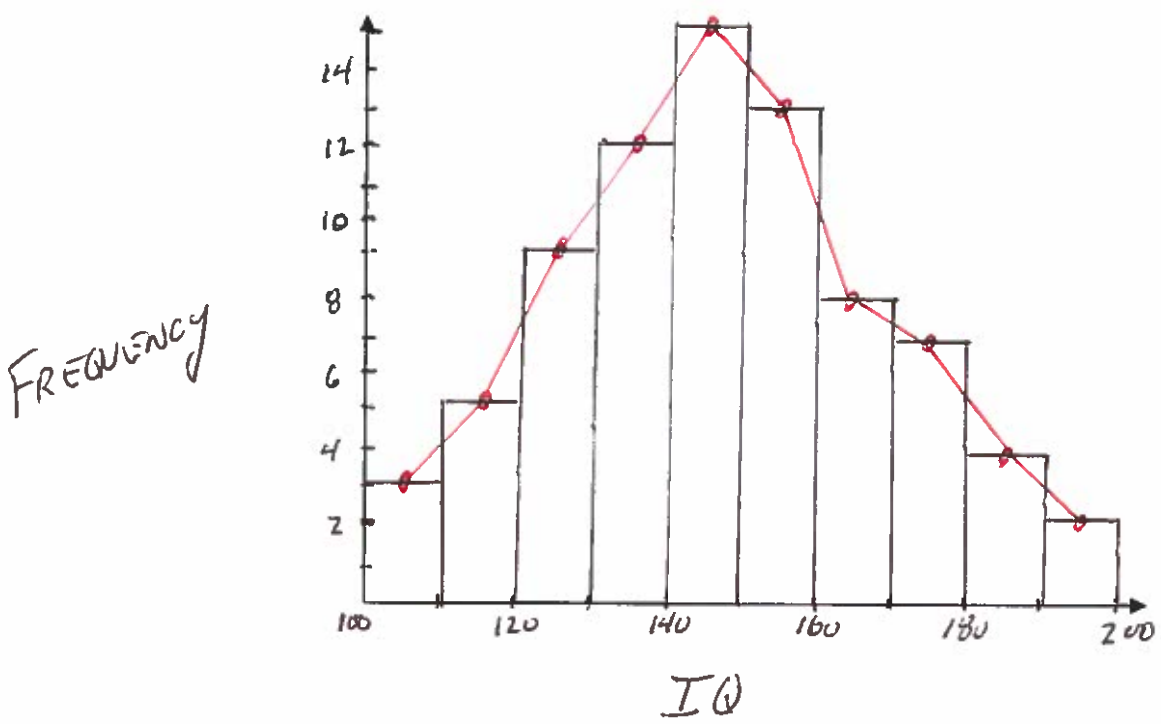
The IQ of 78 Oiler fans chosen at random are shown below. Group the data into 10 classes/intervals and draw a histogram of the grouped data. Also draw a frequency distribution polygon.

130	141	151	172	162	116
160	173	102	181	186	132
121	162	178	152	145	170
174	121	115	122	109	127
150	164	167	117	142	130
135	153	151	131	138	168
152	188	107	144	132	111
141	142	133	125	154	122
177	128	143	113	141	145
137	157	155	128	139	129
195	198	138	140	155	157
159	149	171	156	167	187
140	169	148	145	147	131

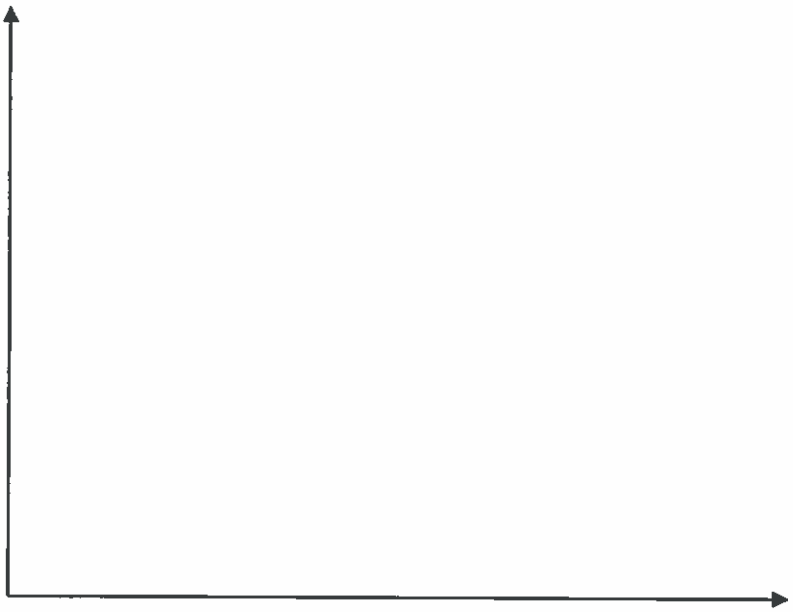
Range	Tally	Frequency	Midpoint
100 - 109	III	3	
110 - 119	𝍸	5	
120 - 129	𝍸 IIII	9	
130 - 139	𝍸 𝍸 II	12	
140 - 149	𝍸 𝍸	15	
150 - 159	𝍸 III	13	
160 - 169	𝍸 III	8	
170 - 179	𝍸 II	7	
180 - 189	IIII	4	
190 - 199	II	2	

a) Histogram

Edmonton Oilers Fans



b) Frequency Polygon



c. Box and Whisker Plot

Enter the data in L_1 of your calculator.

Record the following values:

- Mean $\bar{x} = \mu = 146.7$ $\sigma = 21.7$
- Minimum: 102
- Q_1: 131
- Median: 145
- Q_3: 162
- Maximum: 198

We can use this data to create a box and whisker plot:

- Scale the number line using the intervals from your histogram.
- On the number line, place a point at the minimum, the maximum and each of the quartile points (median is also Q_2).
- Draw a rectangle that begins at Q_1 and ends at Q_3. The rectangle should go above and below the number line with symmetry.
- At the median point, add another line to separate the rectangle; the median line does not need to cut the rectangle in half.
- From the minimum point to the maximum point, draw a thick line.