20 pts.

Math 106 Name ANSWER KEY

Homework, Chapter 12 Due at the beginning of class, Tuesday, April 21, 2009

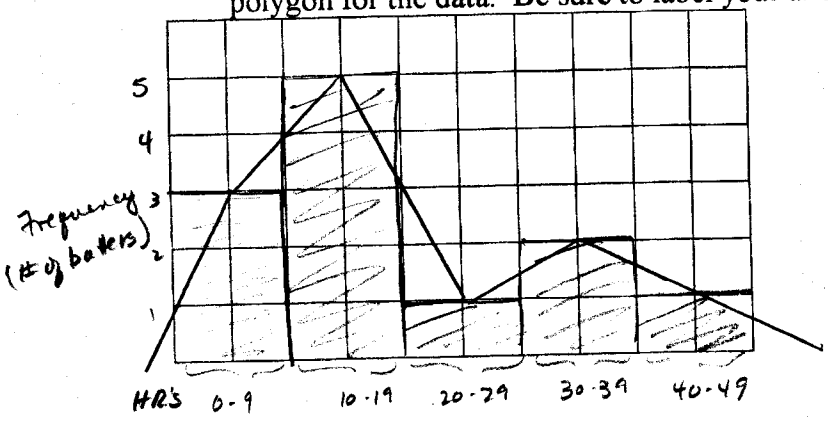
1. Use the data set in problem 57 on page 703 (Number of home runs hit by 12 batters…) and do the following:
   a) Construct a Stem and Leaf plot for the data, using class width equal to 10.

0	0 4 8
1	2 4 7 9 9
2	3
3	2 4
4	8

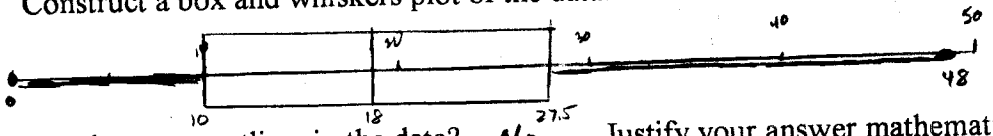
   b) Construct a frequency distribution (frequency table) for the data, using the classes you created in part a) above.

0-9	3
10-19	5
20-29	1
30-39	2
40-49	1

2. Using your frequency distribution from part 1b), construct a histogram and a frequency polygon for the data. Be sure to label your axes.



3. Using the same data set:
   a) Find the mean: 19.166 $\quad \frac{0+4+8+12+14+17+19+19+23+32+34+48}{12} = \frac{230}{12}$
   b) Find the median: 18 $\quad$ 0 4 8 12 14 17 19 19 23 32 34 48 $\quad$ median: $\frac{17+19}{2} = \frac{36}{2} = 18$
   c) Find the mode: 19 (only repeated value)
   d) Find the midrange: 24 $\quad \frac{0+48}{2} = 24$
   e) Find the 5-number summary of the data: {0, 10, 18, 27.5, 48} $\quad Q_1 = \frac{8+12}{2} = 10$ $\quad Q_3 = \frac{23+32}{2} = \frac{55}{2} = 27.5$
   f) Construct a box and whiskers plot of the data.



   g) Are there any outliers in the data? No Justify your answer mathematically.

IQR = 27.5 - 10 = 17.5

Length of "reasonable" whisker = 1.5(17.5) = 26.25. $\quad Q_3 + 1.5(IQR)$

Maximum top value at 27.5 + 26.25 = 53.75 (48 < 53.75)

Minimum bottom value at 10 - 26.25 = -16.25 $\quad (Q_1 - 1.5(IQR))$