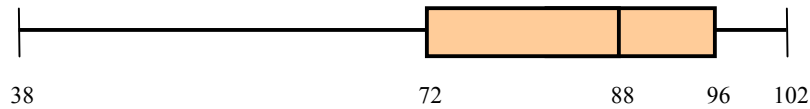Name _____ Period _____

# Box & Whisker Worksheet

For questions 1 – 6, refer to the box & whisker graph below which shows the test results of a math class.

## Test Scores (as %) for 6th Period



38                                              72              88      96    102

_____      1.  What was the high score on the test?

_____      2.  What percent of the class scored above a 72?

_____      3.  What was the median score on the test?

_____      4.  What percent of the class scored between 88 & 96?

5.  Do you think that this test was too hard for the students?  Explain.

_____

_____

6.  Would you expect the mean to be above or below the median?  Explain.

_____

_____

For questions 7 – 11 refer to the box & whisker graph below that shows how much time was spent per night on homework for sophomore class at a certain high school during September.

## Average Minutes Per Night Spent On Homework



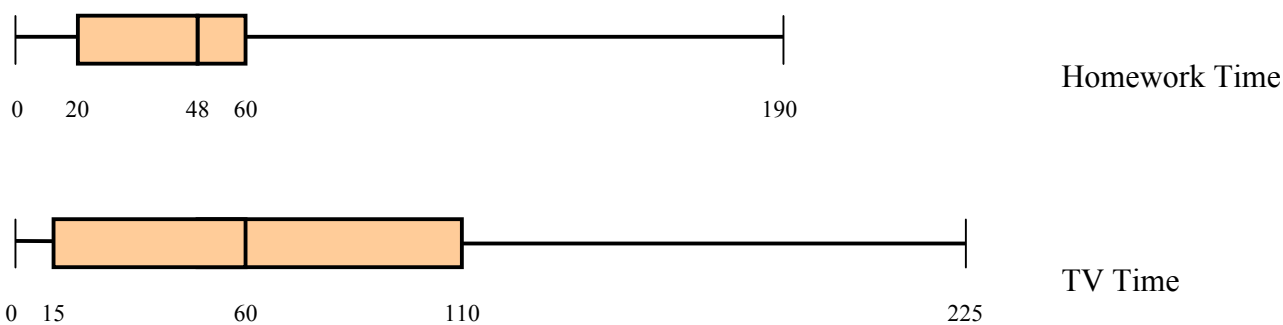0    20              48   60                                              190
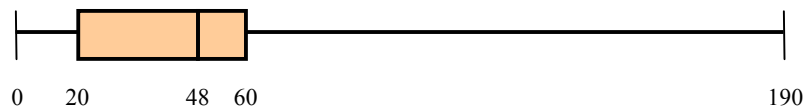
_____      7.  What percent of the sophomores spend more than 60 minutes on homework per night?

_____      8.  What is the range of times that the middle 50% of the sophomores spend on homework per night?

_____     9.  How many sophomores do not do homework?

_____     10.  What percent of the sophomores spend less than 20 minutes per night
                      on homework?

11.  Would you expect the mean number of minutes per night to be higher or lower than
     the median?  Explain.

_____

_____

For questions 12 – 23,  refer to the box & whisker graphs below that compare homework time per
night with TV time per night for the same group of sophomores.

## TV & Homework Minutes per Night

```
   |----[====|==]----------------------------------------------|
   0   20     48  60                                          190        Homework Time


   |--[=========|=============]----------------------------------|
   0  15         60           110                              225       TV Time
```

_____          12.  What percent of the sophomores watch TV for at least 15 minutes per night?

_____          13.  What is the 3$^{rd}$ quartile for the TV time data?

14.  Is it more common for a sophomore at this high school to spend more than 1 hour on homework
     or more than 1 hour watching TV?  Explain.

_____

_____

_____

For questions 15 – 23, identify if each statement is true, false, or cannot be determined.

_____          15.  Some sophomores didn't watch TV that month.

_____          16.  The TV box & whisker graph contains more data than the homework graph.

_____          17.  25% of the sophomores spend between 48 & 60 minutes per night on homework.

_____    18. 15% of the sophomores didn't watch TV that month.

_____    19. In general, these sophomores spend more time watching TV than doing
                  homework.

_____    20. The TV data is more varied than the homework data.

_____    21. The ratio of sophomores who spend more than 110 minutes per night watching
                  TV to those who spend less is about 2:1.

_____    22. 225 sophomores watch TV.

_____    23. Twice as many sophomores watch TV for more than 1 hour than do homework
                  for more than 1 hour.

24. Suppose that one family kept track of how many DVDs they rented each month for a two year
    period. The numbers for each month are shown in the table below. Make a box & whisker
    graph from this data.

| J | F | M | A | M | J | J | A | S | O | N | D | J | F | M | A | M | J | J | A | S | O | N | D |
|---|---|---|---|---|---|---|---|---|---|---|----|---|---|---|---|----|---|---|---|---|---|---|----|
| 3 | 5 | 2 | 8 | 1 | 5 | 0 | 3 | 6 | 4 | 9 | 15 | 3 | 6 | 4 | 1 | 10 | 3 | 8 | 7 | 2 | 9 | 0 | 11 |

For question 25, refer to the box & whisker graphs below that show the average monthly high
temperatures for Milwaukee, Wisconsin & Honolulu, Hawaii.

**Average Monthly High Temperatures**

Milwaukee

26    35                57        73    80

Honolulu

80  81  84.5  87  88
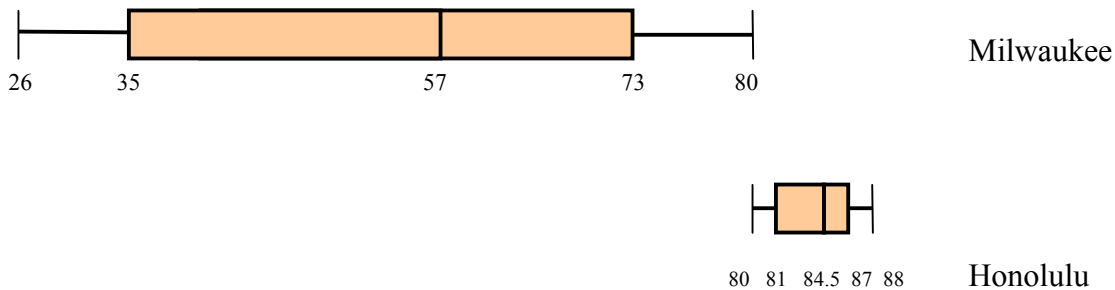
25. Write a short paragraph comparing the temperatures in both cities.

_____

_____

_____

_____

26. In the table below, the average monthly temperatures for Pullman and Seattle are shown. Draw a box & whisker graph (using the same scale) for each city from the data. Then write a short paragraph summarizing what your graphs tell you.

| Month | Pullman Averages | Seattle Averages |
|---|---|---|
| January | 34.5 | 44.7 |
| February | 40.5 | 50.1 |
| March | 47.0 | 53.4 |
| April | 55.9 | 59.4 |
| May | 64.4 | 66.7 |
| June | 71.2 | 71.2 |
| July | 81.6 | 76.9 |
| August | 81.9 | 76.3 |
| September | 72.8 | 71.0 |
| October | 59.8 | 61.3 |
| November | 43.7 | 52.0 |
| December | 35.9 | 47.1 |

For questions 27 – 35, refer to the following data that shows the total number of points scored in each of the rose bowls from 1970 until 2006.

| Year | Total Points | Year | Total Points | Year | Total Points | Year | Total Points |
|---|---|---|---|---|---|---|---|
| 1970 | 13 | 1980 | 33 | 1990 | 27 | 2000 | 26 |
| 1971 | 44 | 1981 | 29 | 1991 | 60 | 2001 | 58 |
| 1972 | 25 | 1982 | 28 | 1992 | 48 | 2002 | 51 |
| 1973 | 59 | 1983 | 38 | 1993 | 69 | 2003 | 48 |
| 1974 | 63 | 1984 | 54 | 1994 | 37 | 2004 | 42 |
| 1975 | 35 | 1985 | 37 | 1995 | 58 | 2005 | 75 |
| 1976 | 33 | 1986 | 73 | 1996 | 73 | 2006 | 79 |
| 1977 | 20 | 1987 | 37 | 1997 | 37 | 2007 | 50 |
| 1978 | 47 | 1988 | 37 | 1998 | 37 | | |
| 1979 | 27 | 1989 | 36 | 1999 | 69 | | |

27. Make a box & whisker graph for the total points scored in each decade.  Make sure your 4 graphs are drawn with the same scale so you can compare them.

Refer to your box & whisker graphs to answer the following questions.

_____     28. In which decade is the total points scored the most consistent?

_____     29. In which decade is the total points scored the most diverse?

_____     30. In which decade is the largest number of total points scored?

_____     31. In which decade is the $3^{rd}$ quartile the highest?

_____     32. In which decade is the median the highest?

_____     33. In which decade is the $1^{st}$ quartile the highest?

_____     34. In which decade is the outlier the most dramatic?  Explain.

_____

_____

35. What is the general trend that your 4 box & whisker graphs reveal?

_____

_____

36. Come up with two data sets that each have 5 elements, each have a mean & a median of 9,  but whose box & whisker graphs would be dramatically different.