**Interpret Differences in Shape, Center, and Spread**

Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

|  |  |  |  |
| --- | --- | --- | --- |
|  | Normal (Symmetrical) | Skewed to the left | Skewed to the right |
| Histogram |  |  |  |
| Box Plot |  |  |  |
| Where is/are the outlier(s)? |  |  |  |
| Relationship between the mean and median. |  |  |  |

* What percentage of data lies within the interquartile range?
* What percentage of the data lies within one standard deviation of the mean?
* What percentage of the data lies within two standard deviation of the mean?

1. Jack normally makes really good grades in math class. All but one of his test scores are really high. His test scores are 97, 98, 94, 93, 99, and 70.
   1. Is 70 an outlier?
   2. Is Jack’s test score data skewed to the left or to the right?
   3. Which measure of spread is larger? Which measure of spread will give a more accurate picture of Jack’s math performance?
   4. Which measure of center is higher? Which measure of center gives a more accurate picture of Jack’s math performance?
2. On the last math test 1st period’s average score was an 85 with a standard deviation of 5 points. 2nd period’s class average score was 88 with a standard deviation of 9 points. Which class was more consistent with their test scores? How do you know?
3. Why does the shape of the distribution of incomes for professional athletes tend to be skewed to the right?

Independent Practice

1. Why does the shape of the distribution of test scores on a really easy test tend to be skewed to the left?
2. Why does the shape of the distribution of heights of the students at your school tend to be symmetrical?
3. The heights of Washington High School’s basketball players are: 5 ft 9in, 5 ft 4in, 5 ft 7 in, 5ft 6 in, 5 ft 5 in, 5 ft 3 in, and 5 ft 7 in. A student transfers to Washington High and joins the basketball team. Her height is 6 ft 10in.
   1. What is the mean height of the team before the new player transfers in? What is the median height?
   2. What is the mean height after the new player transfers? What is the median height?
   3. What affect does her height have on the team’s height distribution and stats (center and spread)?
   4. How many players are taller than the new mean team height?
   5. Which measure of center most accurately describes the team’s average height? Explain