Name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Date \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Homework #1.1 Describing Position in a Distribution**

**Descriptive Statistics:**

*Use the data in the table below to answer the following questions:*

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| Quiz scores: | 75 | 100 | 92 | 68 | 88 | 92 | 86 |

1) Calculate the mean (average) of the data.

2) Find the median of the data.

3) Find the mode of the data.

**Graphical Representations:**

*Use Histograms A & B below to answer the following questions:*

 Histogram A Histogram B





4a,b) *Below* each histogram, write which type of distribution best describes the data: *normal, skewed right, or skewed left*

5a,b) *Draw a vertical line* on each histogram to show the approximate value of the *mean* (average). Label this line “mean.”

6a,b) *Draw a vertical line* on each histogram to show the approximate value of the *median*. Label this line “median.”

7a,b) For each histogram, *draw an arrow* to the approximate value of the *mode*. Label this arrow “mode.”

**Percentiles:**

8) Compute the 30th percentile of the following ordered height data. There are 49 data points. The formula for computing the position of the *p*th percentile is *position=* $\frac{p(n+1)}{100}$, where *p* is the percentile and *n* is the number of data points.

Height (inches)

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 60 | 61 | 62 | 62 | 62 | 63 | 63 | 63 | 63 | 64 |
| 64 | 64 | 64 | 64 | 64 | 64 | 65 | 65 | 65 | 65 |
| 65 | 66 | 66 | 66 | 66 | 67 | 67 | 67 | 67 | 68 |
| 68 | 68 | 68 | 68 | 69 | 69 | 69 | 69 | 69 | 69 |
| 69 | 70 | 70 | 70 | 70 | 71 | 71 | 72 | 72 |  |

*For example, the 70th percentile of the data is 69 inches because* position=$\frac{70(49+1)}{100}=35$*, and the data point in position 35 is 69 inches.*

9) On the probability distribution graph below, *draw a vertical line* to show the approximate value of the 60th percentile.



Frequency

Test score

10) A student took the ACT. Her results showed that she received a composite (overall) score of 20, which put her in the 48th percentile. In your own words, explain what it means to be in the 48th percentile.