

Show work to support each solution.

1. The number of consecutive hours a light bulb will last before it burns out is tested. The data for twenty-four 60-Watt bulbs is shown below.

412 405 409 389 456 425 432 440 425 436 405 417
 421 425 408 411 434 448 392 400 434 430 392 412



Calculate the mean, mode, median, midrange, range, and standard deviation for the numbers of hours of useful life of these light bulbs.

2. In each case, compute the mean, mode, median, and midrange. Then determine which measure of central tendency best characterizes or summarizes the given scenario. Explain your reasoning.

(a) Employee salaries at A & B Co.

\$24,000 \$17,500 \$21,000 \$32,000 \$20,000
 \$27,900 \$30,850 \$18,400 \$26,500 \$145,250

(b) Mickey Mantle's home run output (by season)

13 23 21 27 37 52 34 42 31 40 54
 30 15 35 19 23 22 18



(c) Salesperson ordering ladies athletic shoes based on sales figures for the month

$6, 6\frac{1}{2}, 5, 7, 7\frac{1}{2}, 8\frac{1}{2}, 8, 5\frac{1}{2}, 6, 6, 7\frac{1}{2}, 7, 4, 5\frac{1}{2}, 6, 8, 9\frac{1}{2}, 5\frac{1}{2}, 9, 5\frac{1}{2}$

3. The following data represents high temperatures (to the nearest degree Fahrenheit) in Tahiti for the 31 days of January, 2003.

76	74	78	74	81	70	73
82	77	77	72	75	73	76
83	78	76	72	76	81	77
80	75	80	81	74	78	85
76	77	78				

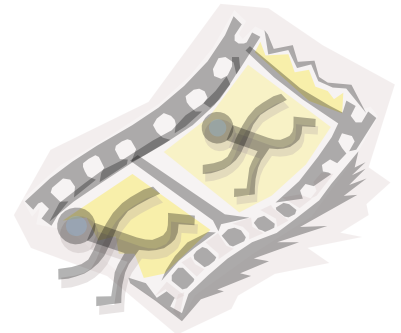


(a) Compute the first and third quartiles and the interquartile range.

(b) Find the 80th percentile for temperatures in Tahiti.

4. An interval with lower and upper bounds for a data set, using the quartile approach, is $(Q_1 - 1.5 \times \text{IQR}, Q_3 + 1.5 \times \text{IQR})$. The interquartile range (IQR) is $Q_3 - Q_1$. Any value outside this range of acceptability is considered an **outlier**.

<u>"Best Actresses" During a Half Century — 1942-1991</u>									
34	24	29	41	30	34	34	33	28	38
45	24	26	48	41	27	40	38	28	27
37	37	30	24	34	60	61	26	35	34
34	26	37	42	41	35	31	41	33	30
74	33	49	38	61	21	41	26	80	42
29									



(a) Sort the given data, and show the selection process for each quartile.

$$Q_1 = \underline{\hspace{2cm}}$$

$$Q_3 = \underline{\hspace{2cm}}$$

(b) Use the interquartile range technique to determine if these Academy Award ages have any apparent outliers. List any outliers you discover. _____