

(1) Find the mean, median and mode for these data for recent salaries of Major League Baseball shortstops. Then, choose one as the “best” measure of central tendency and explain why it is best.

Jose Reyes	22000000	Starlin Castro	6857143	Brendan Ryan	2000000	Nick Franklin	510200	Jose Ramirez	507500
Troy Tulowitzki	20000000	Yunel Escobar	5000000	Ruben Tejada	1880000	Brad Miller	510100	Tyler Ladendorf	507500
Elvis Andrus	15250000	Mike Aviles	3500000	Jose Iglesias	1650000	Gregorio Petit	510000	Marcus Semien	507500
Jhonny Peralta	15000000	Cliff Pennington	3275000	Clint Barmes	1300000	Nick Ahmed	508500	Christian Colon	507500
J.J. Hardy	11500000	Brandon Crawford	3175000	Alexi Amarista	1150000	Tim Beckham	508100	Eduardo Escobar	507500
Jimmy Rollins	11000000	Andrelton Simmons	3142857	Marwin Gonzalez	1062500	Didi Gregorius	507500	Freddy Galvis	507500
Ian Desmond	11000000	Alcides Escobar	3000000	Jean Segura	534000	Andrew Romine	507500	Wilmer Flores	507500
Alexei Ramirez	10000000	Jung Ho Kang	2500000	Pete Kozma	518000	Chris Taylor	507500	Danny Santana	507500
Erick Aybar	8750000	Everth Cabrera	2400000	Xander Bogaerts	517000	Chris Owings	507500	Adeiny Hechavarria	507500
Jed Lowrie	8000000	Zack Cozart	2350000	Jordy Mercer	515500	Hernan Perez	507500	Jonathan Villar	507500

(2) On a busy night, a restaurant tabulated their servers’ tips (by percentage of total bill).

Create a virtual dataset for these frequency data and then use it to find the mean.

<b>Tip (%)</b>	<b>Freq.</b>
0 – 4.9	4
5.0 – 9.9	12
10 – 14.9	12
15.0 – 19.9	16
20.0– 24.9	5
25 – 29.9	1
30 – 34.9	2

- (3) In the survey given at the beginning the Spring 2015 sections of Math 175, the SPORTS data had a mean of 9.04 and standard deviation of 6.31 years. In the Fall 2015 term, the mean and standard deviation were considerably different – 6.93 and 3.83 respectively. Make two conclusions based upon the change in each of these statistics. (one conclusion about the dataset for mean, one for standard deviation; do not try to *explain* the changes).

I.

II.

- (4) Confirm Chebychev’s Theorem for the COST data shown here by computing the proportion of the data that are within one-and-a-half standard deviations of the mean, and comparing that to the value that  $1 - \frac{1}{k^2}$  for  $k = 1.5$ .

1	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$15.00	\$20.00
2	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$15.00	\$20.00
3	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$2.60	\$5.00	\$8.00	\$10.00	\$15.00	\$20.00
4	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$8.00	\$10.00	\$15.00	\$20.00
5	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$8.00	\$10.00	\$15.00	\$20.00
6	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$8.00	\$10.00	\$15.00	\$20.00
7	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$8.95	\$10.00	\$15.00	\$20.00
8	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.00	\$5.00	\$9.00	\$10.00	\$15.00	\$20.00
9	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.50	\$5.00	\$9.00	\$10.00	\$15.00	\$22.00
10	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$3.75	\$5.00	\$10.00	\$10.00	\$15.00	\$24.00
11	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$4.00	\$5.00	\$10.00	\$10.00	\$15.00	\$25.00
12	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$25.00
13	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$25.00
14	\$0.00	\$0.00	\$0.00	\$0.00	\$0.25	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$25.00
15	\$0.00	\$0.00	\$0.00	\$0.00	\$0.75	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$26.00
16	\$0.00	\$0.00	\$0.00	\$0.00	\$1.50	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$27.00
17	\$0.00	\$0.00	\$0.00	\$0.00	\$2.00	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$30.00
18	\$0.00	\$0.00	\$0.00	\$0.00	\$2.25	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$30.00
19	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$5.00	\$10.00	\$10.00	\$15.00	\$30.00
20	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$5.35	\$10.00	\$10.00	\$15.00	\$30.00
21	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$6.00	\$10.00	\$10.00	\$17.00	\$30.00
22	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$10.00	\$17.00	\$30.00
23	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$10.00	\$19.00	\$30.00
24	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$11.00	\$20.00	\$40.00
25	\$0.00	\$0.00	\$0.00	\$0.00	\$2.50	\$5.00	\$7.00	\$10.00	\$14.00	\$20.00	\$50.00

Mean: \$8.14  
Standard Deviation: 20.08

\$50.00
\$60.00
\$60.00
\$300.00