

Quiz 2

Student's Full Name and Number:

Question 1: Suppose that you have the following observations for variable X.

- 6 21 29 31 34 35 38 44 52 70
- 7 21 29 31 34 35 38 44 54 72
- 8 22 30 31 34 35 39 45 55 75
- 10 25 30 32 34 35 39 45 58 76
- 11 25 30 32 34 35 39 45 62 80
- 12 26 30 32 34 35 40 46 63 83
- 16 26 30 33 34 35 43 48 63 88
- 19 28 31 33 34 36 44 50 69 88
- 20 29 31 33 34 37 44 51 70 98
- 20 29 31 34 35 37 44 51 70

Fill in the blanks:

- a) 25 percent of the observations take a value of or lower. 50 percent of the observations take a value of or lower. 75 percent of the observations take a value of or lower.
- b) The first quartile (Q_1) is equal to, the second quartile (Q_2) is equal to, and the third quartile (Q_3) is equal to The interquartile range is equal to
- c) The median is equal to

Question 2: If the mean of a population is 30 and the standard deviation is 6, then at least what proportion of observations are between 21 and 39? At least what proportion of observations are between 18 and 42? (Hint: Use Chebychev's Theorem.)

Question 3: Let X be the number of candies you eat and Y be the length of exercise needed to burn the calories of the candies. Fill in the blanks in the table and answer the questions below.

x_i (pieces)	y_i (minutes)	$x_i - \bar{x}$	$(x_i - \bar{x})^2$	$y_i - \bar{y}$	$(y_i - \bar{y})^2$	$(x_i - \bar{x})(y_i - \bar{y})$
1	5					
2	10					
3	15					
4	20					
5	25					

- a) What is the sample variance of X?
- b) What is the sample variance of Y?
- c) What is the sample covariance between X and Y?
- d) What is the sample correlation coefficient between X and Y?