

Topic Quiz: Quantitative Methods

Question 1

An analyst finds that a particular mutual fund has reported the following annual rates of return:

Year	% Return
20X1	13
20X2	18
20X3	-31

The fund's geometric mean return over the three-year period is *closest* to:

- A) -2.7%.
- B) -0.7%.
- C) 0.0%.

Question 2

For the last six years, an investment generated returns of 1.0%, 6.0%, -7.0%, 4.5%, 3.5%, and 2.5%. The arithmetic mean return is 1.75%. The geometric mean return is:

- A) 1.66%.
- B) 1.75%.
- C) 1.99%.

Question 3

When market interest rates increase, an analyst evaluating an existing portfolio of fixed-coupon bonds should *most likely* expect:

- A) positive capital distribution returns and negative price returns.
- B) negative capital distribution returns and negative price returns.
- C) negative capital distribution returns and positive price returns.

Question 4

An index of three non-dividend-paying stocks is weighted by their market values. One of the index stocks splits 2-for-1 during the year, but no shares are sold. The total return of this index for the year is:

- A) less than the price return of the index.
- B) equal to the price return of the index.
- C) greater than the price return of the index.

Question 5

The EUR/USD spot exchange rate is 0.70145, and one-year interest rates are 3% in EUR and 2% in USD. The forward USD/EUR exchange rate is *closest* to:

- A) 1.1426.
- B) 1.4118.
- C) 1.4396.

Question 6

To calculate a trimmed mean, an analyst should:

- A) treat outliers as valid information and include them in the dataset.
- B) remove a stated percentage of the highest and lowest observations.
- C) replace the highest and lowest observations with percentile cutoff values.

Question 7

A security has a variance of returns equal to 0.02. Another security has a standard deviation of returns equal to 0.07. If these securities' covariance of returns is 0.0086, their correlation is *closest* to:

- A) 0.46.
- B) 0.61.
- C) 0.87.

Question 8

An unconditional expected value is *best* described as the:

- A) most likely outcome of the random variable.
- B) probability-weighted average of all possible outcomes.
- C) midpoint between the highest and lowest possible outcomes.

Question 9

An analyst believes an event can be modeled with a Poisson distribution using a constant rate factor of 3. For a single unit of time, the variance of this Poisson distribution is *closest* to:

- A) 0.3.
- B) 0.6.
- C) 3.0.

Question 10

The percentage changes in annual earnings for a company are approximately normally distributed with a mean of 5% and a standard deviation of 12%. The probability that the average change in earnings over the next five years will be greater than 15.5% is *closest* to:

- A) 2.5%.
- B) 5.0%.
- C) 10.0%.

Question 11

An analyst wants to construct a hypothesis test to determine whether the mean weekly return on a stock is positive. The null hypothesis for this test should be that the mean return is:

- A) greater than zero.
- B) less than or equal to zero.
- C) greater than or equal to zero.