# Free Questions for 8002

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# Question 1

**Question Type:** **MultipleChoice**

The first derivative of a function f(x) is zero at some point, the second derivative is also zero at this point. This means that:

## Options:

**A-** f has necessarily a minimum at this point

**B-** f has necessarily a maximum at this point

**C-** f has necessarily neither a minimum nor a maximum at this point

**D-** f might have either a minimum or a maximum or neither of them at this point

## Answer:

D

# Question 2

**Question Type:** **MultipleChoice**

Consider two securities X and Y with the following 5 annual returns:

X: +10%, +3%, -2%, +3%, +5%

Y: +7%, -2%, +3%, -5%, +10%

In this case the sample covariance between the two time series can be calculated as:

### Options:

**A-** 0.40729

**B-** 0.00109

**C-** 0.00087

**D-** 0.32583

### Answer:

B

## Question 3

**Question Type:** **MultipleChoice**

Which of the following statements about skewness of an empirical probability distribution are correct?

1. When sampling returns from a time series of asset prices, discretely compounded returns exhibit higher skewness than continuously compounded returns

2. When the mean is significantly less than the median, this is an indication of negative skewness

3. Skewness is a sign of asymmetry in the dispersion of the data

## Options:

**A-** All three statements are correct

**B-** Statements 1 and 2 are correct

**C-** Statements 1 and 3 are correct

**D-** Statements 2 and 3 are correct

## Answer:

A

# Question 4

**Question Type:** MultipleChoice

Which of the following statements about variance and standard deviation are correct?

1. When calculated based on a sample of the population data, one has to correct for any bias in the result by using the number of degrees of freedom in the calculation

2. Variance is in square root units of the underlying data, whereas standard deviation is in units of the underlying data

3. When considering independent variables, variance is additive, while standard deviation is not

## Options:

**A-** All three statements are correct

**B-** Statements 1 and 2 are correct

**C-** Statements 1 and 3 are correct

**D-** Statements 2 and 3 are correct

## Answer:

C

# Question 5

**Question Type:** **MultipleChoice**

Consider an investment fund with the following annual return rates over 8 years: +6%, -6%, +12%, -12%, +3%, -3%, +9%, -9% .

What can you say about the annual geometric and arithmetic mean returns of this investment fund?

## Options:

**A-** The arithmetic mean return is zero and the geometric mean return is negative

**B-** The arithmetic mean return is negative and the geometric mean return is zero

**C-** The arithmetic mean return is equal to the geometric mean return

**D-** None of the above

## Answer:

A

# Question 6

**Question Type:** **MultipleChoice**

Which of the following statements concerning class intervals used for grouping of data is correct?

When grouping data, attention must be paid to the following with regards to class intervals:

1. Class intervals should not overlap

2. Class intervals should be of equal size unless there is a specific need to highlight data within a specific subgroup

3. The class intervals should be large enough so that they not obscure interesting variation within the group

## Options:

**A-** Statements 2 and 3 are correct

**B-** Statements 1 and 2 are correct

**C-** All three statements are correct

**D-** Statements 1 and 3 are correct

## Answer:

B

# Question 7

**Question Type:** MultipleChoice

Suppose 60% of capital is invested in asset 1, with volatility 40% and the rest is invested in asset 2, with volatility 30%. If the two asset returns have a correlation of -0.5, what is the volatility of the portfolio?

## Options:

**A-** 36%

**B-** 36.33%

**C-** 26.33%

**D-** 20.78%

## Answer:

D

# Question 8

**Question Type:** MultipleChoice

I have $5m to invest in two stocks: 75% of my capital is invested in stock 1 which has price 100 and the rest is invested in stock 2, which has price 125. If the price of stock 1 falls to 90 and the price of stock 2 rises to 150, what is the return on my portfolio?

### Options:

**A-** -2.50%

**B-** -5%

**C-** 2.50%

**D-** 5%

### Answer:

A

## Question 9

**Question Type:** **MultipleChoice**

If the annual volatility of returns is 25% what is the variance of the quarterly returns?

## Options:

**A-** 0.1250

**B-** 0.0156

**C-** 0.0625

**D-** None of the above

## Answer:

B

# Question 10

**Question Type:** MultipleChoice

The quarterly compounded rate of return is 6% per annum. What is the corresponding effective annual return?

## Options:

**A-** 1.50%

**B-** 6%

**C-** 6.14%

**D-** None of the above

**Answer:**

C

# Question 11

**Question Type:** MultipleChoice

Over four consecutive years fund X returns 1%, 5%, -3%, 8%. What is the average growth rate of fund X over this period?

**Options:**

**A-** 2.67%

**B-** 2.75%

**C-** 2.49%

**D-** None of the above

## Answer:

A

# Question 12

**Question Type:** MultipleChoice

Kurtosis(X) is defined as the fourth centred moment of X, divided by the square of the variance of X. Assuming X is a normally distributed variable, what is Kurtosis(X)?

## Options:

**A-** 0

**B-** 3

**C-** 2

**D-** 1

## Answer:

B