Statistics, Modeling and Finance Practice Exam (Sample)

Study Guide

Everything you need from our exam experts!

Questions

1. **When a property is sold for $195,000, how much is left for the third mortgage holder given first and second mortgage claims?**

   A. $0

   B. $5,000

   C. $10,000

   D. $15,000

2. **What is the average deviation of the following land sales: $65,000, $77,000, $62,500, $75,000, $80,000, $77,500, $72,500, $82,000?**

   A. $4,518.09

   B. $5,453.13

   C. $5,625.79

   D. $5,983.33

3. **True or False: Automated Valuation Models (AVMs) were conceived as a way of replacing appraisers in financing transactions.**

   A. True

   B. False

   C. Depends on the context

   D. Not applicable

4. **A mortgage of $112,000 with a monthly payment of $727.09 has what length of original term?**

   A. 20 years

   B. 22 years

   C. 27 years

   D. 29 years

5. **You may purchase an AVM from all of the following EXCEPT?**

   A. Fannie Mae

   B. Freddie Mac

   C. Corelogic

   D. ATTOM

6. What value represents the average of a given set of numbers?

A. Median

B. Mean

C. Range

D. Standard Deviation

7. The likelihood of an event occurring is measured by?

A. mean

B. probability

C. confidence interval

D. standard deviation

8. Which loans are typically backed by the government and often more accessible to first-time home buyers?

A. Conventional loans

B. FHA loans

C. VA loans

D. Both FHA and VA loans

9. To estimate, calculate, or indicate in advance is the definition of what term?

A. discounting

B. probabilities

C. descriptive statistics

D. forecasting

10. How is an adjustable-rate mortgage defined?

A. Fixed interest rate

B. Graduated interest rate

C. Adjustable rate based on an index

D. Sliding interest rate

Answers

1. B
2. B
3. B
4. C
5. A
6. B
7. B
8. D
9. D
10. C

Explanations

1. When a property is sold for $195,000, how much is left for the third mortgage holder given first and second mortgage claims?

A. $0

B. $5,000

C. $10,000

D. $15,000

To determine how much is left for the third mortgage holder after the property is sold for $195,000, it is essential to understand the hierarchy of mortgage claims. Typically, mortgages are paid off in order of their seniority. This means that the first mortgage is paid first, followed by the second mortgage, and any remaining amount, if available, goes to the third mortgage holder. Assuming that the first and second mortgage claims total to $190,000, when the property is sold for $195,000, the total amount owed sums up to $190,000. This results in $5,000 remaining after covering the first and second mortgages. This detail directly leads to the conclusion that the third mortgage holder would receive the remaining $5,000. The correct answer reflects this calculation, as there is indeed $5,000 available for the third mortgage holder after fulfilling the obligations of the first and second mortgages.

2. What is the average deviation of the following land sales: $65,000, $77,000, $62,500, $75,000, $80,000, $77,500, $72,500, $82,000?

A. $4,518.09

B. $5,453.13

C. $5,625.79

D. $5,983.33

To determine the average deviation, the process involves several key steps. First, calculate the mean (average) of the given land sales values. By adding all the sales amounts together and dividing by the total number of sales, you find the mean: \[Mean = \frac{(65,000 + 77,000 + 62,500 + 75,000 + 80,000 + 77,500 + 72,500 + 82,000)}{8} = \frac{619,500}{8} = 77,437.50 \] Next, compute the absolute deviations from the mean for each land sale price. This means taking the absolute value of the difference between each sale and the mean: - \(|65,000 - 77,437.50| = 12,437.50 \) - \(|77,000 - 77,437.50| = 437.50 \) - \(|62,500 - 77,437.50| = 14,937.50 \) - \(|75,000 - 77,437.50| = 2,437.50 \) - \(|80,000 - 77,

3. True or False: Automated Valuation Models (AVMs) were conceived as a way of replacing appraisers in financing transactions.

A. True

B. False

C. Depends on the context

D. Not applicable

The statement is false because Automated Valuation Models (AVMs) were not specifically conceived to replace appraisers in financing transactions. AVMs are designed to provide quick and cost-effective property valuations by using algorithms to analyze data from various sources, such as public records, recent sales data, and property characteristics. Their primary purpose is to assist in the valuation process, making it more efficient and accessible. While AVMs can supplement the work of appraisers, especially in straightforward financing situations, they do not serve as a complete replacement for the professional judgement and local market insights that licensed appraisers bring to the table. Appraisers often provide a comprehensive analysis that considers not just numerical data, but also qualitative factors, such as property condition and local market trends, which an AVM may not fully capture.

4. A mortgage of $112,000 with a monthly payment of $727.09 has what length of original term?

A. 20 years

B. 22 years

C. 27 years

D. 29 years

To determine the original term of a mortgage, we can use the fixed-rate mortgage formula, which relates mortgage principal, monthly payment, interest rate, and the number of payments. The formula for a monthly payment can be expressed as: \[M = P \cdot \frac{r(1 + r)^n}{(1 + r)^n - 1} \] Where: - \(M \) is the monthly payment. - \(P \) is the principal amount (the amount borrowed). - \(r \) is the monthly interest rate (annual interest rate divided by 12). - \(n \) is the number of payments (months). Given the principal (mortgage amount) of $112,000 and a monthly payment of $727.09, we can rearrange this formula to solve for \(n \) once we have the interest rate. Although the interest rate is not explicitly provided in this problem, a typical calculation would involve assuming a standard interest rate prevalent within the period of the mortgage. Testing common interest rates, one can find the number of months \(n \) that would result in a monthly payment close to $727.09. In instances where the interest rate is around 4.5

5. You may purchase an AVM from all of the following EXCEPT?

A. Fannie Mae

B. Freddie Mac

C. Corelogic

D. ATTOM

An Automated Valuation Model (AVM) is a technology used to estimate property values based on various data factors, including property characteristics, market conditions, and comparable sales. Fannie Mae and Freddie Mac are government-sponsored enterprises (GSEs) primarily involved in mortgage financing and securitization. While they may incorporate AVMs in their processes to assess property values for underwriting and risk management, they do not directly sell or offer AVMs to the public. In contrast, CoreLogic and ATTOM are companies that specialize in real estate data and analytics, including AVMs that they market and sell to lenders, investors, and other real estate professionals. Thus, the correct answer highlights that Fannie Mae is not an entity from which one would directly purchase an AVM, differentiating it from those which are privately owned companies specializing in such services.

6. What value represents the average of a given set of numbers?

A. Median

B. Mean

C. Range

D. Standard Deviation

The average of a given set of numbers is defined as the mean. To calculate the mean, you add all the numbers in the set together and then divide that sum by the total number of values in the set. This gives you a value that represents the central tendency of the data, providing a straightforward summary of the entire dataset. The median, on the other hand, is the middle value when the numbers are arranged in ascending or descending order and does not necessarily represent the average, especially in skewed distributions. The range measures the difference between the highest and lowest values in the dataset, which gives information on the spread of the data rather than its center. Standard deviation quantifies the amount of variation or dispersion in a set of values, again focusing on how the numbers are spread out rather than on the calculation of an average. Each of these alternatives provides different insights into the dataset but does not fulfill the definition of the average as effectively as the mean does.

7. The likelihood of an event occurring is measured by?

A. mean

B. probability

C. confidence interval

D. standard deviation

The likelihood of an event occurring is quantified by probability, which is a fundamental concept in statistics. Probability measures the chance that a specific event will happen, expressed as a number between 0 and 1. A probability of 0 indicates that the event cannot occur, while a probability of 1 indicates that the event will certainly occur. In a probability model, you can determine outcomes and their corresponding probabilities based on empirical data or theoretical models. This precise measurement allows statisticians and researchers to make informed predictions and informed decisions based on the likelihood of various outcomes. Other concepts listed do not directly measure the likelihood of events. The mean provides a measure of central tendency, the confidence interval estimates the range in which a population parameter lies with a certain level of confidence, and the standard deviation quantifies variability or dispersion around the mean. Thus, while all these metrics are important in statistics, only probability specifically addresses the likelihood of events.

8. Which loans are typically backed by the government and often more accessible to first-time home buyers?

A. Conventional loans

B. FHA loans

C. VA loans

D. Both FHA and VA loans

FHA loans and VA loans are specifically designed to assist first-time home buyers by providing more accessible financing options. FHA loans, backed by the Federal Housing Administration, offer lower down payment requirements, generally allowing as little as 3.5% down for qualified buyers. This feature makes them particularly attractive to first-time buyers who may struggle to save a larger down payment. Additionally, FHA loans are designed to cater to borrowers with lower credit scores and have more flexible income requirements compared to conventional loans. On the other hand, VA loans are guaranteed by the U.S. Department of Veterans Affairs and are available to eligible veterans, active-duty service members, and certain members of the National Guard and Reserves. These loans typically require no down payment, no private mortgage insurance (PMI), and offer competitive interest rates, making them a viable option for eligible first-time home buyers. Combining both FHA and VA loans under the umbrella of government-backed loans highlights the accessibility they provide to first-time home buyers, making it clear why the correct answer encompasses both options.

9. To estimate, calculate, or indicate in advance is the definition of what term?

A. discounting

B. probabilities

C. descriptive statistics

D. forecasting

The term that best aligns with the definition of estimating, calculating, or indicating in advance is "forecasting." This concept is often used in various fields such as finance, economics, and business to project future trends based on historical data or statistical models. Forecasting involves analyzing past and present data to make informed predictions about future outcomes, which is essential for decision-making processes in various industries. Discounting is associated with determining the present value of future cash flows, often used in finance to assess the value of investments; it does not directly pertain to estimating future occurrences. Probabilities relate to the likelihood of an event happening, but they do not necessarily involve the act of predicting or estimating outcomes over time in the same manner as forecasting. Descriptive statistics summarize and describe characteristics of a data set, but they do not project or estimate future values. Therefore, forecasting is the most appropriate term that encompasses the idea of making predictions about future events.

10. How is an adjustable-rate mortgage defined?

A. Fixed interest rate

B. Graduated interest rate

C. Adjustable rate based on an index

D. Sliding interest rate

An adjustable-rate mortgage (ARM) is best defined as a mortgage that has an interest rate that can change over time, typically in relation to a specific benchmark or index. This means that the interest rate can fluctuate, resulting in varying monthly payments depending on the performance of the underlying index. The key characteristic of an ARM is that interest rates are not fixed; instead, they adjust at predetermined intervals (such as annually) based on the movement of the associated index, which can include factors like the rates on Treasury securities, the London Interbank Offered Rate (LIBOR), or other financial market indices. This mechanism provides borrowers with potentially lower initial rates compared to fixed-rate mortgages, but it also introduces the risk of increasing payments over time if interest rates rise. In contrast, the other options describe interest rate structures that do not reflect the nature of an ARM. Fixed interest rates remain constant throughout the life of the loan, while graduated rates imply a gradual increase over time but still do not adjust based on an external index. A sliding interest rate is not a standard term used in mortgage lending and does not convey the specific mechanics of how ARMs function.