

Level I of the CFA® Exam

Questions - Quantitative Methods

Offered by AnalystPrep

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Learning Module 1: Returns of Financial Assets and Instruments

Q.26 An investor wants to invest \$600,000 in an asset paying a 5% interest compounded continuously for four years. The value of the investment in 4 years is *closest to*:

- A. \$729,303.75
 - B. \$732,831.62
 - C. \$732,841.65
-

Q.45 An analyst is evaluating the annualized performance of three securities in her portfolio, each held for varying timeframes:

- Security A has earned a return of 6.2 percent over the last 120 days.
- Security B has earned 2 percent over the past six weeks.
- Security C has earned a return of 5 percent over the past two months.

Which of the following securities has the highest annualized return?

- A. Security A.
 - B. Security B.
 - C. Security C.
-

Q.219 You expect XYZ's stock to have a price of USD 142 at the end of the year. Also, you expect to receive a dividend of USD 4. How much will you pay for a stock today in order to realize a return on investment of 11%?

- A. USD 144.60
 - B. USD 122.80
 - C. USD 131.50
-

Q.225 A stock's returns for the past four years are as follows: 12%, 9.5%, 8%, 14.7%. The geometric mean return is *closest to*:

- A. 11.02%
 - B. 11.05%
 - C. 51.90%
-

Q.3497 James Calzon currently has \$5,040.11 in his bank account. If he plans to buy a car for \$5,500 next year, the monthly interest rate that a bank must pay so that James receives a sum of \$5,500 next year is *closest to*:

- A. 0.73%.
 - B. 0.76%
 - C. 9.12%
-

Q.3498 A bank offers an annual interest of 12% with quarterly compounding. If the initial deposited sum is \$1,011, then the sum received at the end of one year is *closest to*:

- A. \$1,132.32.
 - B. \$1,135.96
 - C. \$1,137.89
-

Q.5251 An analyst gathers the following annual total returns for a stock over five years:

Year	Return (%)
1	18.0
2	-12.0
3	25.0
4	30.0
5	-8.0

The geometric mean annual return for the stock over the five years is *closest* to:

- A. 9.19%
 - B. 10.60%
 - C. 55.20%
-

Q.5252 A fund manager reports a gross annual return of 12.5% for a portfolio. The fund incurs management fees of 0.80% and administrative expenses of 0.25% of assets under management. The net return to investors is *most likely*:

- A. 11.45%
 - B. 11.70%
 - C. 12.25%
-

Q.5253 The price of a stock is USD 80.00 at the beginning of six months and USD 84.00 at the end of six months. The six-month continuously compounded return is closest to:

- A. 4.88%
 - B. 5.00%
 - C. 10.00%
-

Q.5254 An investor buys a stock for CAD 75.00, receives a dividend of CAD 1.80 during the year, and sells the stock at the end of the year for CAD 72.00. The holding period return is closest to:

- A. -4.00%
 - B. -1.60%
 - C. 2.40%
-

Q.5255 A mutual fund reported the following quarterly returns: Q1: 2.0%, Q2: 3.0%, Q3: -1.0%, Q4: 4.0%. The annual return for the fund is *closest* to:

- A. 2.00%
 - B. 8.00%
 - C. 8.17%
-

Q.5256 An investor uses a 50% margin loan to purchase 500 shares of a company for GBP 40 per share. The loan has an annual interest rate of 6%. At the end of one year, the investor sells the shares for GBP 48 per share and repays the loan. The investor's leveraged return is *closest* to:

- A. 10.0%
 - B. 17.0%
 - C. 34.0%
-

Q.5257 An analyst observes the following annual total returns for an exchange-traded fund (ETF):

Year	Return (%)
1	50.0
2	-50.0

The difference between the arithmetic mean return and the geometric mean return for the ETF is *closest* to:

- A. 0.00%
 - B. 12.50%
 - C. 13.40%
-

Q.5258 A stock is purchased for USD 150. At the end of the first year, the stock price appreciates to USD 180. At the end of the second year, the stock price falls back to USD 150. The geometric mean annual return for the two years is *closest* to:

- A. 0.00%
 - B. 1.67%
 - C. 20.00%
-

Q.5259 An investor expects a 12% nominal return on a risky asset. The current risk-free rate is 3%, and the expected inflation rate is 2%. The excess return relative to the risk-free rate is *closest* to:

- A. 7.0%
 - B. 8.7%
 - C. 9.0%
-

Q.5260 Over 10 years, the nominal geometric average return for a diversified equity portfolio was 9.0%, and the geometric average inflation rate was 2.5%. The real geometric average return for the portfolio over the period is *closest* to:

- A. 6.34%
 - B. 6.50%
 - C. 11.50%
-

Q.5261 An analyst is calculating the required rate of return for a corporate bond. Which of the following risk premia is *most likely* to be included?

- A. Size risk premium
 - B. Value risk premium
 - C. Default risk premium
-

Q.5262 An investor is considering two investments: a government bond yielding 3.5% and a corporate bond yielding 5.2%. Assuming the bonds have the same maturity, the additional return offered by the corporate bond is *best* described as compensation for:

- A. Credit risk
 - B. Expected inflation
 - C. The real risk-free rate
-

Q.5263 The nominal riskfree rate is 4%, and expected inflation is 2.5%. The real risk-free rate is *closest* to:

- A. 1.46%
 - B. 1.50%
 - C. 6.50%
-

Q.5264 A fund's total return for the year was 15.0%. The fund incurred transaction costs of 0.3% and administrative expenses of 0.6%. The gross return for the fund is *closest* to:

- A. 14.1%
 - B. 14.4%
 - C. 14.7%
-

Q.5265 An investor buys a stock for EUR 60, receives a dividend of EUR 2, and sells it for EUR 65. The investor's marginal tax rate on capital gains is 25% and on dividend income is 30%. The aftertax nominal return is *closest* to:

- A. 8.33%
 - B. 8.58%
 - C. 11.67%
-

Q.5266 The risk-free rate is a component of the required rate of return and is *best* described as the:

- A. additional return expected for bearing extra risk
 - B. return on an investment without any default or reinvestment risk
 - C. return on an investment with no default risk but with significant reinvestment risk
-

Q.5267 An investor purchases a stock for CHF 100 and sells it one year later for CHF 110. During the year, the investor receives a dividend of CHF 3. The inflation rate for the year is 5%. The investor's real total return before taxes is *closest* to:

- A. 8.0%
 - B. 7.6%
 - C. 13.0%
-

Q.5268 Which of the following statements about the relationship between arithmetic and geometric returns is *most* accurate?

- A. The two means are equal when returns are positive
 - B. The arithmetic mean is always greater than the geometric mean
 - C. The difference between the two means increases with the variability of returns
-

Q.5269 For an investment to be attractive, its expected return must at least equal the:

- A. Required rate of return
 - B. Historical geometric mean return
 - C. Risk-free rate plus expected inflation
-

Q.5270 An investor buys a share of a stock for \$50 at the beginning of Year 1. At the end of Year 1, the stock price is \$60, and the investor buys an additional share. At the end of Year 2, the stock price is \$55, and the investor sells both shares. No dividends are paid. The time-weighted annual return for the two-year period is *closest* to:

- A. -0.50%
 - B. 4.88%
 - C. 5.84%
-

Learning Module 2: Types of Financial Returns

Q.5271 An investor purchases a zero-coupon bond at a deep discount and holds it to maturity. Which of the following *best* describes the source of return for this investment?

- A. Price appreciation only
 - B. Fixed capital distribution returns only
 - C. Both price appreciation and capital distribution returns
-

Q.5272 A company's board of directors declares a quarterly dividend of \$0.75 per share. On the ex-dividend date, the stock price declines by approximately \$0.75. This price adjustment *most likely* occurs because:

- A. the company's future earnings prospects have deteriorated
 - B. investors prefer capital gains to dividend income for tax reasons
 - C. the company's assets decrease by the total amount of dividends paid
-

Q.5273 An analyst gathers the following information about two investments:

Investment	Purchase Price	Sale Price	Distributions Received
A	100.00	108.00	4.00
B	100.00	104.00	8.00

The total return for Investment A and Investment B, respectively, is *closest* to:

- A. 8.0% and 4.0%
 - B. 12.0% and 8.0%
 - C. 12.0% and 12.0%
-

Q.5274 An investor is considering two companies in different industries: Company X is a mature utility with stable cash flows Company Y is a rapidly growing technology firm Based on typical corporate behaviour, Company X is *more likely* to:

- A. reinvest all earnings to fund expansion
 - B. distribute a substantial portion of earnings as dividends
 - C. repurchase shares exclusively without paying dividends
-

Q.5275 A 90-day Treasury bill with a \$10,000 face value is priced at \$9,880. Using a 365-day year, the effective annualized yield is *closest* to:

- A. 4.85%
 - B. 4.92%
 - C. 5.01%
-

Q.5276 Which of the following statements about derivatives is *most* accurate?

- A. Derivatives generate periodic cash flows derived from the underlying asset
 - B. Derivatives provide direct ownership claims on the underlying financial assets
 - C. The value of a derivative is based on expected future price movements of the underlying
-

Q.5277 An analyst observes that over 45 years, an asset class had a geometric average return of 11.2% and a range of annual returns of 81%. A second asset class had a geometric average return of 12.3% and a range of 75%. Based on this information, the analyst should *most likely* conclude that:

- A. the first asset class exhibited lower risk than the second
 - B. higher returns were associated with higher risk in all periods
 - C. the second asset class was less risky than the first based on the range
-

Q.5278 A financial instrument that pays a fixed dividend, has priority over common stock for dividend payments, but typically carries no voting rights, is *best* described as:

- A. preferred stock
 - B. a convertible bond
 - C. a derivative contract
-

Q.5279 Which of the following risks is least likely to be reduced by holding a well-diversified portfolio of 50 different stocks across various industries?

- A. The risk that a specific company's CEO resigns unexpectedly
 - B. The risk that interest rates will increase due to central bank policy
 - C. The risk that a labour strike affects a single manufacturing company
-

Q.5280 An investor owns a bond with a fixed coupon rate of 4%. Market interest rates suddenly increase to 6%. The *most likely* immediate effect on the investor's bond is:

- A. no change in price because the coupon rate is fixed
 - B. an increase in price because the coupon is now more attractive
 - C. a decrease in price because newly issued bonds offer higher yields
-

Q.5281 A US investor purchases shares of a Japanese company when the exchange rate is 110 yen per dollar. The investor sells the shares one year later when the exchange rate is 105 yen per dollar. During the holding period, the stock price in yen increased by 10%. The investor's total return in US dollars will *most likely* be:

- A. less than 10% due to yen depreciation
 - B. greater than 10% due to yen appreciation
 - C. exactly 10% because currency effects cancel out
-

Q.5282 The risk-free rate is *most* appropriately derived from:

- A. AAA-rated corporate bond yields
 - B. short-term government debt securities
 - C. the historical average return of the S&P 500 Index
-

Q.5283 Which of the following *best* describes unsystematic risk?

- A. Inflation accelerates, reducing real returns for all bondholders.
 - B. A global recession reduces earnings expectations across most major sectors.
 - C. A pharmaceutical company's drug fails to receive regulatory approval.
-

Q.5284 An investor has a choice between two investments with the same expected return. Investment X has a narrow range of historical annual returns, while Investment Y has a wide range. A risk-averse investor would *most likely* choose:

- A. investment X because it offers more predictable returns
 - B. either investment, since the expected returns are identical
 - C. investment Y because the wide range indicates higher potential gains
-

Q.5285 Market indexes such as the Russell 2000 and Bloomberg US Aggregate Bond Index are *most* commonly used by investment professionals to:

- A. replace fundamental analysis in security selection
 - B. generate direct returns for investors who purchase
 - C. serve as benchmarks for evaluating portfolio performance
-

Q.5286 Which of the following *best* describes the relationship between systematic risk and the risk premium?

- A. Systematic risk and risk premium are inversely related.
 - B. Investors require a risk premium only for bearing unsystematic risk.
 - C. The risk premium compensates investors for bearing systematic risk.
-

Q.5287 Historical data show that dividend yields for US equities have trended downward over several decades. This trend is *most likely* attributable to:

- A. decreased corporate profitability
 - B. increased regulatory requirements for dividend payments
 - C. a shift toward share repurchases as a method of returning capital
-

Q.5289 A convertible bond allows the holder to exchange the bond for a fixed number of common shares. This feature *best* explains that the bond's return will reflect:

- A. equity characteristics only
 - B. fixed income characteristics only
 - C. both fixed income and equity characteristics, depending on market conditions
-

Q.5290 Which of the following statements about price return and capital distribution return is *most* accurate?

- A. All financial assets generate both price returns and capital distributions.
 - B. Price return is generally more predictable than capital distribution return.
 - C. The relative contribution of each return source varies by asset type and over time.
-

Q.5291 During a period of rising interest rates, an investor holding long-term government bonds is *most likely* to experience:

- A. capital gains from price appreciation
 - B. capital losses from price depreciation
 - C. no price change because government bonds are risk-free
-

Learning Module 3: Benchmarking Returns

Q.5292 A portfolio manager generated identical returns across two portfolios. However, Portfolio A experienced large client withdrawals before a market rally, while Portfolio B had no cash flows. Which of the following statements is the *most* accurate?

- A. Portfolio A will have a higher TWRR than Portfolio B.
 - B. Portfolio A will have a lower MWRR than Portfolio B.
 - C. Both portfolios will have identical MWRR because returns were identical.
-

Q.5293 A portfolio evolves as follows: Start: 100 → Before cash flow: 110 → Investor adds 40 → total becomes 150 → End: 165 The portfolio's TWRR is *closest* to:

- A. 10%
 - B. 21%
 - C. 65%
-

Q.5294 A price-weighted index contains two stocks: Stock A = \$100, Stock B = \$50. Stock A declines by 10%, Stock B rises by 10%. What *most likely* happens to the index?

- A. It increases.
 - B. It decreases.
 - C. It remains unchanged.
-

Q.5295 An analyst compares two equity indices. One index consistently shows lower returns despite holding the same securities in identical proportions. The *most likely* explanation is that the lower-return index:

- A. uses float-adjusted weights.
 - B. rebalances more frequently.
 - C. excludes reinvestment of cash flows.
-

Q.5296 An index constructed using share prices assigns greater influence to companies with higher nominal share prices, regardless of their economic size. This index is *most likely*:

- A. insensitive to stock splits.
 - B. biased toward smaller firms.
 - C. inconsistent with market value representation.
-

Q.5297 An equal-weighted index is *most likely* expected to outperform a market-cap-weighted index during periods when:

- A. Large-cap stocks dominate returns.
 - B. Dividend yields increase across all stocks.
 - C. Smaller-cap stocks outperform larger-cap stocks.
-

Q.5298 A stock in a price-weighted index undergoes a 2-for-1 stock split. Which of the following actions will *most likely* help to maintain index continuity?

- A. Increase the divisor to offset the lower stock price.
 - B. Decrease the divisor to offset the lower stock price.
 - C. No adjustment is required because market capitalization is unchanged.
-

Q.5299 A fundamentally weighted index assigns weights based on company earnings. Which of the following *most likely* depicts how the index will behave during a period of significant market overvaluation?

- A. The index will overweight overpriced securities.
 - B. The index will behave identically to a price-weighted index.
 - C. The index will tilt toward undervalued companies relative to a market-cap index.
-

Q.5300 A portfolio has the following characteristics:

- Beginning value: \$100,000
- End of Period 1 value: \$120,000
- Investor adds \$80,000 at the end of Period 1
- End of Period 2 value: \$220,000

Which of the following statements *best* describes the relationship between the portfolio's TWRR and MWRR?

- A. The TWRR will exceed the MWRR because the additional capital dilutes the impact of subsequent returns.
 - B. The TWRR and MWRR will be equal because both methods reflect the same underlying asset performance.
 - C. The MWRR will exceed the TWRR because a larger capital base is exposed to favorable performance in the second period.
-

Q.5301 Which return measure *best* evaluates a portfolio manager's skill?

- A. Time-weighted return
 - B. Money-weighted return
 - C. Arithmetic average return
-

Q.5302 Which index type reflects total investor wealth *most* accurately?

- A. Price return index
 - B. Total return index
 - C. Equal-weighted index
-

Q.5303 Which index is *most likely* to require frequent rebalancing?

- A. Price-weighted
 - B. Equal-weighted
 - C. Market-cap weighted
-

Q.5304 An equal-weighted equity index initially assigns 2% weight to each of its 50 constituents. Over time, some stocks rise while others decline. At the next adjustment, weights are restored to 2%. This action is best described as:

- A. reweighting, because high-performing stocks are removed
 - B. reconstitution, because index composition is being adjusted
 - C. rebalancing, because weights are reset without changing constituents
-

Q.5305 A market-cap-weighted index removes a company that no longer meets minimum liquidity requirements and replaces it with a new eligible firm. This action is *best* described as:

- A. reweighting, because market capitalization changes
 - B. reconstitution, because index membership is updated
 - C. rebalancing, because weights will change after replacement
-

Q.5306 An index provider reviews its index quarterly to adjust weights back to target levels, remove firms that no longer meet criteria, and add new eligible firms. These activities are *best* categorized under:

- A. index universe definition
 - B. index maintenance process
 - C. index weighting methodology
-