2019 Level I Mock Exam (C) AM

The morning session of the 2019 Level I Chartered Financial Analyst® Mock Examination has 120 questions. To best simulate the exam day experience, candidates are advised to allocate an average of one and a half minutes per question for a total of 180 minutes (3 hours) for this session of the exam.

Questions	Topic	Minutes
1–19	Ethical and Professional Standards	28.5
20–31	Quantitative Methods	18
32–43	Economics	18
44–61	Financial Reporting and Analysis	27
62–73	Corporate Finance	18
74–80	Portfolio Management	10.5
81–93	Equity	19.5
94–106	Fixed Income	19.5
107–113	Derivatives	10.5
114–120	Alternative Investments	10.5
	Total:	**180**

2019 LEVEL I MOCK EXAM (C) AM

1 Which of the following statements is *most likely* consistent with the CFA Institute Code of Ethics? CFA Institute members and CFA candidates must:

A promote the integrity of and uphold the rules governing capital markets.

B practice the highest level of personal and professional integrity and always act in the best interest of their employers.

C maintain their professional competence and require investment professionals under their supervision to adopt the CFA Code of Ethics.

A is correct because the Code of Ethics requires CFA members and candidates to promote the integrity of and uphold rules governing capital markets. While the Code of Ethics requires members and candidates to act with integrity, and the interests of the client are paramount, not all requests of clients are appropriate to follow, particularly if considered unethical or illegal. The Code of Ethics does not require members and candidates to encourage others to pursue the CFA designation, but to improve their professional competence.

B is incorrect because there are times when acting in the best interests of an employer may conflict with the Code and Standards or in the best interests of clients

C is incorrect because there is no such requirement for supervisors.

Code of Ethics and Standards of Professional Conduct

LOS b

2 Tibor Figeczky, CFA, is an equity trader at Global Investment Bank (GB). Figeczky traded the bank's investment portfolio profitably for the past three years and earned significant bonuses for his efforts. Subsequently, internal auditors of GB formally accused Figeczky of exceeding his trading authority and engaging in unauthorized trades. According to the CFA Institute Code of Ethics and Standards of Professional Conduct, Figeczky should *most likely*:

A disclose the complaint to CFA Institute.

B refuse further bonuses until the issue is resolved.

C request a temporary suspension of his CFA Institute membership.

A is correct as members and candidates must self-disclose on the annual Professional Conduct Statement all matters that question their professional conduct, such as involvement in civil litigation or a criminal investigation or being the subject of a written complaint.

B is incorrect as the Code and Standards do not prohibit a member from accepting a bonus while an investigation into his professional behavior is conducted. In this case, the member's actions have been questioned but he has not yet had an opportunity to defend his behavior and may in fact have acted within his authority and earned the compensation fairly.

C is incorrect as the Code does not require a member to request a suspension of their membership while a complaint is being investigated.

Code of Ethics and Standards of Professional Conduct

LOS c

3 Amanda Covington, CFA, works for McJan Investment Management. McJan employees must receive prior clearance of their personal investments in accordance with McJan's compliance procedures. To obtain prior clearance, McJan employees must provide a written request identifying the security, the quantity of the security to be purchased, and the name of the broker through which the transaction will be made. Pre-cleared transactions are approved only for that trading day. As indicated below, Covington received prior clearance.

Security	Quantity	Broker	Prior Clearance
A	100	Easy Trade	Yes
B	150	Easy Trade	Yes

Two days after she received prior clearance, the price of Stock B had decreased, so Covington decided to purchase 250 shares of Stock B only. In her decision to purchase 250 shares of Stock B only, did Covington violate any CFA Institute Standards of Professional Conduct?

A No.

B Yes, relating to diligence and reasonable basis.

C Yes, relating to her employer's compliance procedures.

C is correct because prior clearance processes guard against potential and actual conflicts of interest; members are required to abide by their employer's compliance procedures [Standard VI(B)].

A is incorrect because Covington did violate the Standards in that she did not follow her employer's compliance procedures [Standard VI(B)].

B is incorrect as there is nothing to indicate she violated Standard V(A)–Diligence and Reasonable Basis.

Guidance for Standards I–VII

LOS a

Standard V(A)–Diligence and Reasonable Basis, Standard VI(B)–Priority of Transactions

4 Kazuya Kato, CFA, is a widely followed economist at a global investment bank. When Kato opines on economic trends, markets react by moving stock valuations considerably. When Kato receives information of a temporary oversupply of rare earth metals, he issues a forecast that price trends for rare earth metals will be down significantly on a long-term basis. Kato also secretly sells his report to a widely followed Internet site. Prior to issuing this forecast, Kato emailed all portfolio managers at his bank with a copy of his report indicating that his opinion would be reversed shortly so there will be trading opportunities. Kato *most likely* violated which of the following CFA Institute Code of Ethics and Standards of Professional Conduct?

A Market Manipulation.

B Priority of Transactions.

C Additional Compensation Arrangements.

B is correct because Kato exaggerated the potential for negative price movement with rare earth metals and violated Standard II(B)–Market Manipulation by aiming to profit on the volatility created by his actions. Standard II(B) requires that members and candidates uphold market integrity by prohibiting market manipulation. Market manipulation includes the dissemination of false or misleading information and transactions that deceive or would be likely to mislead market participants by distorting the price-setting mechanism of financial instruments. Standard IV(B)–Additional Compensation Arrangements was violated when he sold his report to the internet site. Standard VI(B)–Priority of Transactions has not been violated as it relates to investment transactions for clients and employers having priority over Member or Candidate transactions.

A is incorrect because Kato exaggerated the potential for negative price movement with rare earth metals and violated Standard II(B)–Market Manipulation by aiming to profit on the volatility created by his actions. Standard II(B) requires that members and candidates uphold market integrity by prohibiting market manipulation. Market manipulation includes the dissemination of false or misleading information and transactions that deceive or would be likely to mislead market participants by distorting the price-setting mechanism of financial instruments.

C is incorrect because Standard IV(B)–Additional Compensation Arrangements was violated when he sold his report to the internet site.

Guidance for Standards I–VII

LOS a

Standard II(B)–Market Manipulation, Standard IV(B)–Additional Compensation Arrangements, Standard VI(B)–Priority of Transactions

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5 Mailaka Securities (MS) advertises the use of a "bottom up" investment style in its marketing material. Recently, MS senior management decided to switch to a "top down" approach, citing the fact that it is less labor intensive. All other aspects of the research process are to remain the same. The head of research at MS, Mara Cherogony, CFA, is instructed to supervise the implementation of the new procedures, notify clients of the changes, and revise the text of marketing materials when new material is produced. Which of the following CFA Standards pertaining to Investment Analysis, Recommendations, and Actions is Cherogony *least likely* in danger of violating?

A Supervisory Responsibility

B Communication with Clients

C Diligence and Reasonable Basis

C is correct because research can still be considered diligent and having a reasonable basis if done using a "top down" research methodology as opposed to a "bottom up" methodology. By not communicating to prospective clients the change in the investment process through the delay in the creation of new marketing material, however, Cherogony violates Standard V(B)–Communication with Clients, which requires members and candidates to disclose to clients and prospective clients the basic format and general principles of the investment processes they use to analyze investments, select securities, and construct portfolios and must promptly disclose any changes that might materially affect those processes. As a supervisor, Cherogony is responsible for ensuring compliance with the Code and Standards.

A is incorrect because by delaying the change in the marketing material until the inventory is depleted, there is a possibility that the new investment process policy will not be clearly communicated to prospective clients. As a supervisor, Cherogony is responsible to ensure the compliance with the Code and Standards.

B is incorrect because Cherogony violates Standard V, which requires members and candidates to disclose to clients and prospective clients the basic format and general principles of the investment processes they use to analyze investments, select securities, and construct portfolios and must promptly disclose any changes that might materially affect those processes. By delaying the change in the marketing material until the inventory is depleted, there is a possibility that the new investment process policy will not be clearly communicated to prospective clients.

Guidance for Standards I–VII

LOS a

Standard IV(C)–Responsibility of Supervisors, Standard V(A)–Diligence and Reasonable Basis, Standard V(B)–Communication with Clients and Prospective Clients

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6 While at a bar in the financial district after work, Ellen Miffitt, CFA, overhears several employees of a competitor discuss how they will manipulate down the price of a thinly traded micro cap stock's price over the next few days. Miffitt's clients have large positions of this stock so when she arrives at work the next day she immediately sells all of these holdings. Because she had determined the micro cap stock was suitable for all of her accounts at its previously higher price, Miffitt buys back her client's original exposure at the end of the week at the new, lower price. Which CFA Institute Standards of Professional Conduct did Miffitt *least likely* violate?

A Market Manipulation

B Preservation of Confidentiality

C Material Nonpublic Information

B is correct as Miffitt has not violated the confidentiality standard that involves information about former, current, and prospective clients.

A is incorrect because even though she did not initiate the market manipulation, Miffitt added to the stock's price movement when she sold into a declining market particularly with thinly traded stocks which can be easily influenced by changes in the volume of activity. By repurchasing the shares for her clients she is seeking to take advantage of the manipulation and is in violation of Standard II(B).

C is incorrect as she has attempted to benefit her clients by trading on information that could affect the value of the micro cap stock and as such would be classified as material nonpublic information. Information that is known regarding orders for large trades before they are executed is considered material nonpublic information.

Guidance for Standards I–VII

LOS b

Standard II(A)–Material Nonpublic Information, Standard II(B)–Market Manipulation, Standard III(E)–Preservation of Confidentiality

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7 Sergio Morales, CFA, believes he has found evidence that his supervisor is engaged in fraudulent activity involving a client's account. When Morales confronts his supervisor, he is told the client is fully aware of the issue. Later that day, Morales contacts the client and upon disclosing the fraudulent activity, is told by the client to mind his own business. Following the requirements of local law, Morales provides all of his evidence, along with copies of the client's most recent account statements, to a government whistle blower program. Has Morales *most likely* violated the CFA Institute Standards of Professional Conduct?

A No.

B Yes, concerning Duties to Employers.

C Yes, concerning Preservation of Confidentiality.

A is correct because Morales believes his supervisor and potentially the client are engaged in fraudulent activity and by following the requirements of local law, through their whistleblower program, he has not violated Standard III(E)–Preservation of Confidentiality or Standard (V)–Duties to Employers.

B is incorrect because Morales has not violated Standard (V)–Duties to Employers.

C is incorrect because Morales believes that his supervisor and potentially the client are engaged in fraudulent activity and by following the requirements of local law, through their whistleblower program, he has not violated Standard III(E)–Preservation of Confidentiality.

Guidance for Standards I–VII

LOS b

Standard III(E)–Preservation of Confidentiality, Standard IV–Duties to Employers

8 Leng Bo, CFA, is a bond portfolio manager for individual investors. Last year, a client whose portfolio is limited to investment-grade bonds approved Bo's purchase of a below investment grade bond. Because yields in the high grade fixed-income markets declined, Bo subsequently decides to enhance this client's portfolio by investing in several additional bonds with ratings one or two notches below investment grade. The investment strategy implemented by Bo *most likely* violated which of the following CFA Institute Standards of Professional Conduct?

A Suitability

B Communications with Clients

C Independence and Objectivity

A is correct because the client only approved the purchase of one below investment grade bond while the portfolio manager has purchased several additional bonds below investment grade without client approval in violation of Standard III(C).

B is incorrect because no violation of this Standard has occurred.

C is incorrect because no violation of this Standard has occurred.

Guidance for Standards I–VII

LOS b

Standard I(B)–Independence and Objectivity, III(C)–Suitability, Standard V(B)–Communication with Clients and Prospective Clients

9 Stian Klun, CFA, is preparing a brochure to advertise his firm. The brochure includes the following disclosures:

> "I am a CFA so I am a member of the CFA Institute, which constitutes the most elite group of professionals within the investment management business. In order to become a CFA charterholder, I had to complete a comprehensive program of study in the investment management field."

Klun is *least likely* to have violated the CFA Institute Standards of Professional Conduct related to referencing the:

A CFA Institute.

B CFA Program.

C CFA Designation.

B is correct as the CFA Program has been properly referenced while the CFA Institute and CFA Designation have been improperly referenced in violation of Standard VII(B)–Reference to the CFA Institute, the CFA Designation, and the CFA Program. CFA Institute cannot be referred to as the most elite group of professionals within the investment management business as this is an opinion that cannot be objectively determined. The CFA acronym should be used an adjective rather than a noun, i.e. CFA Charterholder.

A is incorrect as individuals must not exaggerate the meaning or implications of membership in CFA Institute.

C is incorrect because Klum has indicated that he is a CFA and improperly referenced the designation.

Guidance for Standards I–VII

LOS b

Standard VII(B)–Reference to CFA Institute, the CFA Designation, and the CFA Program

10 Alexandra Zagoreos, CFA, is the head of a government pension plan. Whenever Zagoreos hires a money management firm to work with the pension plan, she finalizes the deal over dinner at a nice restaurant. At these meals, Zagoreos also arranges for the money manager to provide her payments equal to 10% of the management fee the manager receives from the pension plan with no formal documentation of this agreement. Zagoreos keeps half of the payments for her own use and distributes the remainder as cash incentives to a handful of her most trusted staff. Zagoreos *least likely* violated which of the following CFA Institute Code of Ethics and Standards of Professional Conduct?

A Referral fees.

B Loyalty, Prudence and Care.

C Additional Compensation Arrangements.

A is correct as the money should not be accepted without receiving written consent from all parties involved; therefore, Zagoreos is in violation of Standard IV(B)–Additional Compensation Arrangements. The manager has acted for her own benefit by receiving compensation that competes with or might reasonably be expected to create a conflict of interest with her employer's interest without receiving written consent from all parties involved. This action is a violation of Standard III(A)–Loyalty, Prudence, and Care, which requires that members act for the benefit of their clients, and places their client's interests before their employer's or their own interests. However, there is no indication that the member has received compensation, consideration, or benefit received from, or paid to, others for the recommendation of products or services and therefore has not violated Standard VI(C) related to referral fees.

B is incorrect because the manager has acted for their own benefit by receiving compensation that competes with or might reasonably be expected to create a conflict of interest with her employer's interest without receiving written consent from all parties

involved. This action is a violation of Standard III(A)–Loyalty, Prudence, and Care, which requires that members act for the benefit of their clients, and places their client's interests before their employer's or their own interests.

C is incorrect as the manager has accepted compensation that competes with or might reasonably be expected to create a conflict of interest with her employer's interest without receiving written consent from all parties involved, in violation of Standard IV(B)–Additional Compensation Arrangements.

Guidance for Standards I–VII

LOS b

Standard III(A)–Loyalty, Prudence, and Care, Standard IV(B)–Additional Compensation Arrangements, Standard VI(C)–Referral Fees

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11 Florence Zuelekha, CFA, is an equity portfolio manager at Grid Equity Management (GEM), a firm specializing in commodities. Zuelekha, who previously focused on alternative energy, recently attends her first commodity conference, sponsored in large part by GEM. Independent industry experts argued that commodities would increase in value and recommended that investors hold at least 10% of their portfolio assets in commodities based on consistent increases in their values over the previous two years. Without doing any additional research, Zuelekha recommends to all her clients an immediate allocation of 5% of their portfolio into commodities. Over the next few weeks, Zuelekha moves her own portfolio to a 10% commodity allocation. Which of the CFA Standards did Zuelekha *most likely* violate?

A Priority of Transactions.

B Independence and Objectivity.

C Diligence and a Reasonable Basis.

C is correct, as Standard (V)–Diligence and a Reasonable Basis requires members and candidates to have a reasonable and adequate basis, supported by appropriate research and investigation, for any investment analysis, recommendation, or action. Relying solely upon attendance at a one-day conference listening to industry experts to make an investment recommendation, especially when the industry experts have based their recommendations upon price data only, would not meet the requirements of the Code and Standards with regard to Diligence and a Reasonable Basis.

A is incorrect because there has not been a violation of this standard.

B is incorrect, as even though the portfolio manager has allocated a portion of her portfolio to an asset class she recommended for clients there has not been a violation of this Standard since the manager has not front run any of her clients.

Guidance for Standards I–VII

LOS b

Standard V(A)–Diligence and a Reasonable Basis

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12 Charles Mbuwanga, a Level 3 CFA Candidate, is the Business Development Manager for Sokoza Investment Group, an investment management firm with high-net-worth retail clients throughout Africa. Sokoza introduced listed Kenyan Real Estate Investment Trusts (REITs) to its line of investment products based on new regulations introduced in Kenya so as to diversify its product offering to clients. The product introduction comes after months of researching Kenyan property correlations with other property markets and asset classes in Africa. Sokoza assigns Mbuwanga as part of the sales team in introducing this product to its clients across Africa. Mbuwanga subsequently determines that

most of Sokoza's clients' portfolios would benefit from having a small Kenyan property exposure to help diversify their investment portfolios. By promoting the Kenyan REITS for Sokoza's client portfolios as planned, Mbuwanga would *least likely* violate which of the following Standards?

A Suitability

B Knowledge of the Law

C Independence and Objectivity

C is correct because there is no indication Mbuwanga's recommendation is based on any compensation package based on sales targets as being part of the sales team. If he had a sales target as part of his responsibility to promote the new product, it could be conceived his independence and objectively was in question. Mbuwanga does however seem to be in violation of Standard III(C)–Suitability in that while research with regard to correlation was undertaken, an analysis based on each individual client's return and risk objectives was not done. He may also be in violation of Standard I(A)–Knowledge of Law in that he would need to determine if the Kenyan REIT product is allowable in each of the countries where his clients reside.

A is incorrect because while research with regard to correlation was undertaken, an analysis based on each individual clients' return and risk objectives was not done.

B is incorrect as the new REIT products are being recommended to all clients based on new regulations introduced in Kenya. Mbuwanga may be in violation of Standard I(A)–Knowledge of the Law depending on the rules and regulations in each of the African countries where his clients reside if those regulations do not allow investments outside of the country and/or in this investment type.

Guidance for Standards I–VII

LOS c

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13 When Abdullah Younis, CFA, was hired as a portfolio manager at an asset management firm two years ago and was told he could allocate his work hours as he saw fit. At that time, Younis served on the board of three nonpublic golf equipment companies and managed a pooled investment fund for several members of his immediate family. Younis was not compensated for his board service or for managing the pooled fund. Younis' investment returns attract interest from friends and co-workers who persuade him to include their assets in his investment pool. Younis recently retired from all board responsibilities and now spends more than 80% of his time managing the investment pool for which he charges non-family members a management fee. Younis has never told his employer about any of these activities. To comply with the CFA Institute Standards of Professional Conduct with regards to his business activities over the past two years, Younis would *least likely* be required to disclose which of the following to his employer?

A Board activities

B Family investment pool management

C Non-family member management fees

A is correct because golf equipment is a business independent of the financial services industry such that any board obligations would not likely be considered a conflict of interest requiring disclosure according to Standard IV(B)–Additional Compensation

Arrangements. Standard IV(B) requires members and candidates to obtain permission from their employer before accepting compensation or other benefits from third parties for the services that might create a conflict with their employer's interests. Managing investments for family and non-family members could likely create a conflict of interest for Younis' employer and should be disclosed to his employer.

B is incorrect, as Younis should have made full and fair disclosure of all matters that could reasonably be expected to impair his independence and objectivity or interfere with his respective duties to his clients, prospective clients, and employer as required by Standard VI(A)–Disclosure of Conflicts. Since the majority of his time is now spent on fund management, in potential competition with his employer, he would need to disclose this. Disclosure of the outside work should also have been made at the time of employment so that his employer was fully aware of these activities and could make their own judgment on whether or not these activities impaired the broker's ability to complete his responsibilities at the financial services organization.

C is incorrect, as Younis should have made full and fair disclosure of all matters that could reasonably be expected to impair his independence and objectivity or interfere with his respective duties to his clients, prospective clients, and employer as required by Standard VI(A)–Disclosure of Conflicts. Since the majority of his time is now spent on fund management, in potential competition with his employer, he would need to disclose this. Disclosure of the outside work should also have been made at the time of employment so that his employer was fully aware of these activities and could make their own judgment on whether or not these activities impaired the broker's ability to complete his responsibilities at the financial services organization.

Guidance for Standards I–VII

LOS c

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14 Hezi Cohen, a CFA candidate, is a heavy user of social networking sites on the Internet. His favorite site only allows a limited number of characters for each entry so he has learned to abbreviate everything, including CFA trademarks. Cohen also enjoys professional networking sites and contributes regularly to blogs that discuss the broad topical areas covered within the CFA Program. In addition, he posts to these blogs pieces he has written in his area of expertise: retirement planning. By claiming to be an expert on retirement planning, he believes his stature within the investment community increases and he can gain more clients. Which internet activity can Cohen *most likely* continue to be in compliance with the CFA Standards of Professional Conduct?

A Use of abbreviations.

B Claiming retirement planning expertise.

C Blogging about broad topical areas within the CFA Program.

B is correct because the Standards do not prevent a person from claiming to be an expert in their area of specialty as long it is not a misrepresentation and/or an exaggeration of their skill and expertise.

A is incorrect because according to Standard VII, CFA Institute trademarks are not allowed to be abbreviated.

C is incorrect because Standard VII–Responsibilities as a CFA Institute Member or CFA Candidate restricts the disclosing of all aspects of the CFA exam, including broad topical areas. These are considered confidential and thus should not be discussed over the Internet.

Guidance for Standards I–VII

LOS c

Standard VII–Responsibilities as a CFA Institute Member or CFA Candidate

15 Jacques Lagarde, CFA, is a sell-side analyst at Springhill Financial, a small investment bank. Springhill is the lead manager for the equity offering of Chorale Music. Lagarde is not part of the IPO team for this offering. While finalizing a research report on Chorale, Lagarde discovers inconsistencies that makes him believe the company may have concealed losses in its leasing division last quarter that would significantly reduce its earnings. Lagarde suspects that Springhill's investment banking team are aware of these unreported losses. The prospectus for Chorale's equity offering has already been approved by regulators and distributed to potential investors. According to the CFA Institute Code of Ethics and Standards of Professional Conduct, Lagarde should *most likely*:

A report the issue to his supervisor.

B issue a report showing the leasing division losses.

C issue the report using data as reported in the prospectus.

A is correct because Lagarde has potentially uncovered material omissions that would impact Chorale's IPO, and the most appropriate first step would be to report this issue to his supervisor. This issue should be investigated more fully. If the losses are confirmed, Lagarde should insist that these losses be made public.

B is incorrect because given the sensitive (and potentially criminal) nature involving a company concealing losses from an earnings report, it would be inappropriate for Lagarde to issue a report showing the losses when his opinion may not be correct.

C is incorrect because it would be inappropriate for Lagarde to issue a report using the data from the prospectus when he has reason to believe this information is factually inaccurate.

Guidance for Standards I–VII
LOS c
Standard I(A)–Knowledge of the Law, Standard II(A)–Material Nonpublic Information

16 For firms to claim compliance with the GIPS standards they *most likely* must:

A take responsibility for their claim of compliance and maintaining that compliance.

B hire an independent third party to test a sample of their composites.

C increase the consistency and quality of the firm's compliant presentations.

A is correct. Firms claiming compliance with the GIPS standards are responsible for their claim of compliance and for maintaining that compliance. That is, firms self-regulate their claim of compliance.

B is incorrect because verification is performed to test the process with respect to an entire firm, not on specific composites or a sample of composites.

C is incorrect, verification not the firm, may increase the knowledge of the firm's performance measurement team and improve the consistency and quality of the firm's compliant presentations.

Introduction to the Global Investment Performance Standards (GIPS)
LOS c

17 When claiming GIPS compliance, a firm will *least likely* have to apply all of the required provisions in the first five major sections of the GIPS standards when investing in:

A separately managed accounts.

B equity mutual funds or unit trusts.

C commodity related portfolios.

A is correct. Certain provisions of Sections 0–5 do not apply to real estate investments, private equity investments and/or separately managed accounts. Private equity, real estate, and separately managed accounts have their own sections within the GIPS standards specific to each respective asset class (Sections 6–8).

B is incorrect because mutual funds or unit trusts would be subject to the provisions in Sections 0–5.

C is incorrect because commodity funds would be subject to the provisions in Sections 0–5.

The GIPS Standards
LOS d

18 Which of the following *best* outlines the minimally acceptable behaviors expected of a member belonging to a societal group?

A Standards of conduct

B Code of ethics

C A firm's employee handbook

A is correct. Standards of conduct outline the minimally acceptable behaviors expected of a member of a societal group. The code of ethics serves as a general guide for how community members should act.

B is incorrect. A code of ethics does not outline the minimally acceptable behaviors expected of its societal members, it serves as a general guide for how community of members should act.

C is incorrect. A firm's employee handbook does not outline the minimally acceptable behaviors expected of its societal members, it outlines the expected behavior of the firm's employees.

Ethics and Trust in the Investment Profession
LOS a
Section 2

19 Most societies would *least likely* consider ethical principles to include:

A justice.

B duplicity.

C diligence.

B is correct. Most societies acknowledge the ethical principles of honesty, fairness or justice, diligence, and respect for the rights of others. Duplicity or deception would be in violation of most ethical principles.

A is incorrect. Justice is often considered an ethical principle in most societies.

C is incorrect. Diligence is often considered an ethical principle in most societies.

Ethics and Trust in the Investment Profession

LOS a

Section 2

20 The following is an excerpt from the cumulative distribution function for the standard normal random variable table:

Cumulative Probabilities for a Standard Normal Distribution
$P(Z \leq x) = N(x)$ for $x \geq 0$ or $P(Z \leq z) = N(z)$ for $z \geq 0$

x **or *z***	**0**	**0.01**	**0.02**	**0.03**	**0.04**	**0.05**	**0.06**	**0.07**	**0.08**	**0.09**
0.10	0.5398	0.5438	0.5478	0.5517	0.5557	0.5596	0.5636	0.5675	0.5714	0.5753
0.20	0.5793	0.5832	0.5871	0.5910	0.5948	0.5987	0.6026	0.6064	0.6103	0.6141
0.30	0.6179	0.6217	0.6255	0.6293	0.6331	0.6368	0.6406	0.6443	0.6480	0.6517
0.40	0.6554	0.6591	0.6628	0.6664	0.6700	0.6736	0.6772	0.6808	0.6844	0.6879
…										
1.10	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.883
1.20	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.30	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.40	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319
…										
1.80	0.9641	0.9649	0.9656	0.9664	0.9671	0.9678	0.9686	0.9693	0.9699	0.9706
1.90	0.9713	0.9719	0.9726	0.9732	0.9738	0.9744	0.9750	0.9756	0.9761	0.9767
2.00	0.9772	0.9778	0.9783	0.9788	0.9793	0.9798	0.9803	0.9808	0.9812	0.9817
2.10	0.9821	0.9826	0.9830	0.9834	0.9838	0.9842	0.9846	0.9850	0.9854	0.9857

A variable is normally distributed with a mean of 2.00 and a variance of 16.00. Using the excerpt, the probability of observing a value of 7.40 or less is *closest* to:

A 63.3%.

B 91.2%.

C 96.8%.

B is correct. First the outcome of interest, 7.40, is standardized for the given normal distribution:

$$Z = (X - \mu/\sigma) = (7.40 - 2.00)/\sqrt{16} = 1.35$$

Then, the given table of values is used to find the probability of a *Z*-value being less than or equal to 1.35 standard deviations *above* the mean. The value is $P(Z \leq 1.35) = 0.9115 = 91.2\%$.

A is incorrect; it divides 5.4 (that is the result of 7.4 – 2) by the variance, 16, and uses 0.34 as the *z*-value: P(Z≤0.34) = 0.6331 = 63.3%.

C is incorrect; it divides the value, 7.4, by the standard deviation, 4, and uses 1.85 as the *Z*-value: $P(Z \leq 1.85) = 0.9678 = 96.8\%$.

Common Probability Distributions
LOS c, d, k, l
Section 3.2

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21 Which of the following *most* accurately describes how to standardize a random variable *X*?

A Subtract the mean of *X* from *X*, and then divide that result by the standard deviation of the standard normal distribution.

B Divide *X* by the difference between the standard deviation of *X* and the standard deviation of the standard normal distribution.

C Subtract the mean of *X* from *X*, and then divide that result by the standard deviation of *X*.

C is correct. There are two steps in standardizing a random variable *X*: Subtract the mean of *X* from *X*, and then divide that result by the standard deviation of *X*. This is represented by the following formula: $Z = (X - \mu)/\sigma$.

A is incorrect. There are two steps in standardizing a random variable *X*: Subtract the mean of *X* from *X*, and then divide that result by the standard deviation of *X*. This is represented by the following formula: $Z = (X - \mu)/\sigma$.

B is incorrect. There are two steps in standardizing a random variable *X*: Subtract the mean of *X* from *X*, and then divide that result by the standard deviation of *X*. This is represented by the following formula: $Z = (X - \mu)/\sigma$.

Common Probability Distributions
LOS l
Section 3.2

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22 The time-weighted rate of return:

A results in a lower return when compared with the money-weighted rate of return.

B is affected by the amount and timing of cash flows to and from a portfolio.

C calculates multi-period cash flows mirroring a portfolio's compound growth rate.

C is correct. Time-weighted rate of return reflects the compound rate of growth of one unit of currency invested over a stated measurement period, and it removes the effects of timing and amount of withdrawals and additions to the portfolio.

A is incorrect. Time-weighted rate of return can be the same, higher, or lower than money-weighted rate of return.

B is incorrect because this is in fact the explanation for money-weighted return.

Discounted Cash Flow Applications
LOS d
Section 3.2

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23 Given a discount rate of 10%, the net present value (NPV) of the following investment is *closest* to:

Time	0	1	2	3	4	5	6
Cash flow	–1,500	300	600	1,000	200	500	300

A 605.

B 578.

C 636.

C is correct. The given cash flows are inserted into a financial calculator along with the 10% discount rate: $CF_0 = –1{,}500$, $CF_1 = 300$, $CF_2 = 600$, $CF_3 = 1{,}000$, $CF_4 = 200$, $CF_5 = 500$, $CF_6 = 300$, $I = 10$. Computing NPV the result is 636.32 ~ **636**. Alternatively, the net present value of the project is found by discounting each cash flow by the time at which it arises, at the appropriate discount rate, as follows:

$$\text{NPV} = \frac{-1500}{(1.10)^0} + \frac{300}{(1.10)^1} + \frac{600}{(1.10)^2} + \frac{1000}{(1.10)^3} + \frac{200}{(1.10)^4} + \frac{500}{(1.10)^5} + \frac{300}{(1.10)^6}$$
$$= 636.32 \sim 636$$

B is incorrect; 578 occurs when the cash flows are discounted by one period too many (i.e., Year 0 is discounted as if it were Year 1, Year 1 is discounted as if it were Year 2, etc.): $CF_1 = –1{,}500$, $CF_2 = 300$, $CF_3 = 600$, $CF_4 = 1{,}000$, $CF_5 = 200$, $CF_6 = 500$, $CF_7 = 300$, $I = 10$. Computing NPV the result is 578.

A is incorrect; the mistake is to use the average cash flow across the six years (483.33). Using a financial calculator: PMT = –483.33, $N = 6$, $I/Y = 10$, FV = 0. Computing PV (PV = 2,105.03) and subtracting 1,500: 2,105.03 – 1500 = 605.03 ~ 605.

Discounted Cash Flow Applications
LOS a
Section 2.1
Capital Budgeting
LOS d
Section 4.1

24 A parametric test is *most likely* preferred to a non-parametric test when:

A the data are given in ratio or ordinal scale.

B defined sets of assumptions are given.

C the population is heavily skewed.

B is correct. A parametric test is more appropriate than a non-parametric one when an analyst is concerned with parameters whose validity depends on a definite set of assumptions—for example, assumptions about the distribution of the population producing the sample.

A is incorrect. A nonparametric test is suitable for this case.
C is incorrect. A nonparametric test is also suitable for this.
Hypothesis Testing
LOS k
Section 5

25 The conditional expected value of a random variable is *best* described as the:

A expected value of a random variable given an event or scenario.

B probability-weighted average of the possible outcomes of the random variable.

C weighted average of the probabilities of an event given all possible scenarios.

A is correct. The conditional expected value of a random variable is the expected value of a random variable given an event or scenario.

B is incorrect because an expected value (not a conditional expected value) is defined as the probability-weighted average of the possible outcomes of the random variable.

C is incorrect because an expected value is not a probability. This answer defines the total probability rule, which is the weighted average of the probabilities of an event given all possible scenarios.

Probability Concepts
LOS i
Section 8.2

26 The variance of returns of Asset A is 625. The variance of returns of Asset B is 1,225. The covariance of returns between Asset A and Asset B is 600. The correlation of returns between Asset A and Asset B is *closest* to:

A 0.29.

B 0.69.

C 0.47.

B is correct. Correlation of returns between asset *i* and *j*, $\rho(R_i,R_j)$, is defined as:

$\rho(R_i,R_j) = \text{Cov}(R_i,R_j)/\sigma(R_i)\sigma(R_j)$ where

R_i and R_j = the returns of assets *i* and *j*
$\text{Cov}(R_i,R_j)$ = the covariance of returns between assets *i* and *j*
$\sigma(R_i)$ and $\sigma(R_j)$ = the standard deviations of returns of assets *i* and *j*

In this problem, the correlation is $600/\left(\sqrt{625} \times \sqrt{1{,}225}\right) = 0.6857 \sim 0.69$.

A is incorrect. The mistake is an incorrect order of operations as in $\left(600/\sqrt{625}\right) \times \sqrt{1{,}255}$ = 840, then the square root of 840 is taken: $\sqrt{840} = 28.98$. The result is divided by 100: 28.98/100 = 0.2898 ~ 0.29.

C is incorrect. It is calculated as follows: $600^2/(625 \times 1{,}225) = 0.47$.

Probability Concepts
LOS k
Section 3

27 Survivorship bias is *most likely* an example of which bias?

A Sample selection

B Data mining

C Look-ahead

A is correct. Sample selection bias often results when a lack of data availability leads to certain data being excluded from the analysis. Survivorship bias is an example of sample selection bias.

B is incorrect. Data mining bias relates to the overuse of the same or related data, i.e., searching for pattern. And survivorship bias is not an example of data mining bias.

C is incorrect. Look-ahead bias exists if the model uses data not available to the analyst at the time the analyst act on the model. Survivorship bias is not an example of look-ahead bias.

Sampling and Estimation
LOS k
Section 5.2

28 A sample of 438 observations is randomly selected from a population. The mean of the sample is 382, and the standard deviation is 14. Based on Chebyshev's inequality, the endpoints of the interval that must contain at least 88.89% of the observations are *closest* to:

A 340 and 424.

B 396 and 480.

C 354 and 410.

A is correct. According to Chebyshev's inequality, the proportion of the observations within k standard deviations of the arithmetic mean is at least $1 - 1/k^2$ for all $k > 1$. For $k = 3$, that proportion is $1 - 1/3^2$, which is 88.89%. The lower endpoint is, therefore, the mean (382) minus 3 times 14 (the standard deviation), and the upper endpoint is 382 plus 3 times 14 (i.e., 340 and 424, respectively).

C is incorrect; it is based on 2 standard deviations, not 3: $382 - 2 \times 14 = 354$ and $382 + 2 \times 14 = 410$.

B is incorrect; it centers the interval around the number of observations (438) rather than the mean (382).

Statistical Concepts and Market Returns
LOS h
Section 7.6

29 Compared with the occurrence of fundamental developments related to a company, when do technical analysts believe that related security price movements are *most likely* to arise?

A After

B Before

C Simultaneously

B is correct. Technicians believe that security price movements occur before fundamental developments of a company unfold and before they are reported to the public.

A is incorrect. Technicians believe that security price movements occur before, not after, fundamental developments unfold—certainly before they are reported.

C is incorrect. Technicians believe that security price movements occur before, not at the same time as, fundamental developments unfold—certainly before they are reported.

Technical Analysis
LOS a
Section 2.1

30 If the stated annual interest rate is 9% and the frequency of compounding is daily, the effective annual rate (EAR) is *closest* to:

A 9.00%.

B 9.86%.

C 9.42%.

C is correct. EAR = (1 + periodic interest rate)^m − 1 = [1 + (0.09/365)]^{365} − 1 = 0.094162, rounded to 9.42%.
A is incorrect because it treats the stated rate and the EAR as equivalents.
B is incorrect; it is calculated using (9/365) × 4 = 0.09863.
The Time Value of Money
LOS c
Sections 3.2, 3.3,

31 Using a discount rate of 5%, compounded monthly, the present value (PV) of $5,000 to be received three years from today is *closest* to:

A $4,319.

B $4,305.

C $4,250.

B is correct. PV = $FV_N(1 + r_s/m)^{-mN}$. In this case, PV = $5,000(1 + 0.05/12)^{(-12\times3)}$ = $4,304.88.
Using a financial calculator: FV = $5,000, *N* = 36, *I*/*Y* = 5/12, PMT = 0, and solve for PV.
A is incorrect. It is calculated without monthly compounding (*N* = 3, *I*/*Y* = 5). Alternatively: 5,000(1 + 0.05)$^{(-3)}$ = 4,319 (rounded)
C is incorrect. It is calculated as PV = 5,000[1 − (0.05 × 3)] = 4,250.
The Time Value of Money
LOS d, e
Section 5.2

32 Assume the following:

Current spot rate for the USD/EUR	0.7500
Forward rate for the EUR/AUD	1.4300
EUR/AUD forward premium to the spot rate	400 points

USD: US dollar; EUR: Euro; AUD: Australian dollar

The USD/AUD spot rate is *closest* to:

A 1.0296.

B 1.0425.

C 1.1154.

B is correct.

Step 1: Find the spot rate for the EUR/AUD

$$\begin{aligned}\text{Spot} &= \text{Forward Rate} - \text{Forward Points}\\ &= 1.4300 - (400/10{,}000)\\ &= 1.3900\end{aligned}$$

Step 2: Calculate current cross rate

$$\begin{aligned}(\text{USD/AUD}) &= (\text{EUR/AUD}) \times (\text{USD/AUD})\\ &= 0.7500 \times 1.3900\\ &= 1.0425\end{aligned}$$

A is incorrect. It incorrectly subtracts forward premium from 1.
(1 – 400/10000) × 1.43 = 1.3728
1.3728 × 0.75 = 1.0296
C is incorrect. It incorrectly adds forward premium to 1.
(1 + 400/10000) × 1.43 = 1.4872
1.4872 × 0.75 = 1.1154
Currency Exchange Rates
LOS d, e
Sections 3.2 and 3.3

33 If the domestic currency is trading at a forward premium, then relative to the interest rate of the domestic country, the interest rate in the foreign country is *most likely*:

A lower.

B higher.

C the same.

B is correct. The currency with the higher (lower) interest rate will always trade at a discount (premium) in the forward market. The lower interest rate in the domestic country will be offset by the appreciation of the domestic country's currency over the investment horizon.

A is incorrect because the forward rate is trading at a premium and not at a discount.
C is incorrect because the forward rate does not equal the spot rate.
Currency Exchange Rates
LOS h
Section 3.3

34 In the classification of currency regimes, a currency board system (CBS) *most likely* differs from a fixed-rate parity system in that:

A a CBS can peg to a basket of currencies but a fixed-rate system cannot.

B the monetary authority within a CBS does not act as a traditional lender of last resort.

C a CBS has a discretionary target level of foreign exchange reserves.

B is correct. In a CBS, the monetary authority has an obligation to maintain 100% foreign currency reserves against the monetary base. It therefore cannot lend to troubled financial institutions. As long as the country under a fixed parity regime maintains its exchange peg, the central bank can serve as a lender of last resort.

A is incorrect. It is the fixed-rate system that can use a basket of currencies for the peg.

C is incorrect. In a fixed parity system the monetary authority has a discretionary target level of reserves, but in a CBS it does not because there is a commitment to exchange domestic currency for a specified foreign currency at a fixed exchange rate.

Currency Exchange Rates
LOS i
Sections 4.3.2, 4.3.3

35 During the last month, a food company located in the United States had the following transactions:

Transaction Amount	(US$ millions)
Bought raw material from Indonesia	50.0
Sold food products to France	65.0
Received royalty fees from its branch in the United Kingdom	0.5
Donated to a charitable institution in Africa	0.1
Borrowed from a bank in Singapore	2.0
Paid legal fees to its German legal consultant company	1.2
Received interest coupon from its investment in Eurobonds issued in Luxembourg	0.8

These transactions will *most likely* increase the US current account by:

A $15.0 million.

B $14.5 million.

C $17.0 million.

A is correct. Note that the borrowing from a bank in Singapore is not a current account transaction.

Transaction	Current Account (US$ millions)
Bought raw material from Indonesia	–50.0
Sold food products to France	65
Received royalty fees from its branch in the United Kingdom	0.5
Donated to charitable institution in Africa	–0.1
Borrowed from a bank in Singapore	Omit
Paid legal fees to its German legal consultant company	–1.2
Received interest coupon from its investment in Eurobonds issued in Luxembourg	0.8
Total	**15**

B is incorrect because the royalty fee is not included.
C is incorrect because the bank loan is included.
International Trade and Capital Flows
LOS h
Sections 4.2–4.3

36 The transmission of a central bank's policy rate action through the economy ultimately affects:

A total demand.

B inflation.

C long-term interest rates.

B is correct. The monetary transmission mechanism is the process whereby a central bank's interest rate gets transmitted through the economy and ultimately affects the rate of increase of prices (inflation).

A is incorrect because, although policy rate actions do transmit through the economy by affecting total demand, this influence on total demand is an intermediate effect that drives subsequent domestic inflationary pressure. In effect, policy rate actions ultimately impact inflation through the avenue of total demand.

C is incorrect because although policy rate actions do transmit through the economy through the channel of market rates (both short-term and long-term interest rates), this is just one of four channels and multiple interconnected channel relationships that impacts total demand. In effect, policy rate actions ultimately impact inflation through the channel of market interest rates (including long-term interest rates).

Monetary and Fiscal Policy
LOS i
Section 2.3.3

37 If there is a policy rate of 3%, a real trend rate of growth in the underlying economy of 1%, and long-run expected inflation of 3%, then the central bank policy stance operating within a credible inflation-targeting regime is *best* described as:

A neutral.

B contractionary.

C expansionary.

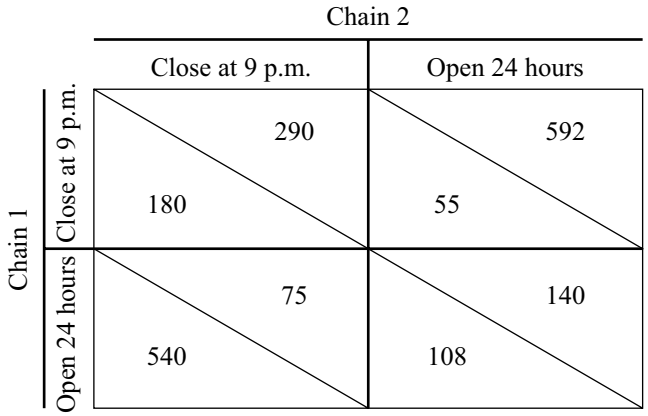
C is correct. A real trend rate of growth of 1%, coupled with 3% long-run expected inflation, suggests a 4% neutral rate of interest that neither spurs on nor slows down the underlying economy. The 3% policy rate is less than the 4% neutral rate of interest. When the policy rate is below the neutral rate, monetary policy is described as expansionary.

A is incorrect because, with a neutral policy stance, the central bank's policy rate would be equal to the neutral rate. In this case, the policy rate of 3% is less than the neutral rate of 4% (1% trend growth plus 3% long-run inflation expectation), which is expansionary (not neutral).

B is incorrect because, with a contractionary policy stance, the central bank's policy rate would be greater than the neutral rate. In this case, the policy rate of 3% is less than the neutral rate of 4% (1% trend growth plus 3% long-run inflation expectation), which is expansionary (not contractionary).

Monetary and Fiscal Policy
LOS m
Section 2.4

38 The two dominant supermarket chains in the area are attempting to increase their market share by moving to 24-hour service instead of closing at 9 p.m. every night. The strategic outcomes and payoff matrix that arise from their actions are depicted in the diagram (with the shaded sections representing payoffs for Chain 2).



According to the Nash equilibrium, the *best* strategy is for:

A both chains to open for 24 hours.

B only Chain 2 to open for 24 hours.

C both chains to close at 9 p.m.

A is correct. Each company will consider the other's reaction in selecting its strategy. Using the following summary, it is best for both chains to provide 24-hour service.

Chain	Consideration		Best Decision
1	**If it opens for 24 hours**, it will see a higher payoff regardless of what Chain 2 does.		Open for 24 hours
	Chain 2 Closes at 9 p.m.	**Chain 2 Opens for 24 hours**	
	Chain 1 earns 540 instead of 180	Chain 1 earns 108 instead of 55	
2	**If it opens for 24 hours**, it will see a higher payoff regardless of what Chain 1 does.		Open for 24 hours
	Chain 1 Closes at 9 p.m.	**Chain 1 Opens for 24 hours**	
	Chain 2 earns 592 instead of 290	Chain 2 earns 140 instead of 75	

B is incorrect because it produces the highest combined profit from all combinations but is not relevant for any 1 chain in this market environment.

C is incorrect. As indicated in the table, both chains have an incentive to open for 24 hours because they will do better regardless of what their competitor does.

The Firm and Market Structures
LOS a, d, e
Section 5.1

39 First-degree price discrimination is *best* described as pricing that allows producers to increase their economic profit while consumer surplus:

A is eliminated.

B increases.

C decreases.

A is correct. In first-degree price discrimination, the entire consumer surplus is captured by the producer; the consumer surplus falls to zero.

B is incorrect. In first degree price discrimination, the entire consumer surplus is captured by the producer; the consumer surplus falls to zero.

C is incorrect. In first degree price discrimination, the entire consumer surplus is captured by the producer; the consumer surplus falls to zero.

The Firm and Market Structures
LOS d, e
Section 6.4

40 Over a given period, the price of a commodity falls by 5.0%, and the quantity demanded rises by 7.5%. The price elasticity of demand for the commodity is *best* described as:

A perfectly elastic.

B elastic.

C inelastic.

B is correct. If demand is elastic, a 1 percent reduction in price increases the quantity sold by more than 1 percent. Therefore, when demand is elastic, the magnitude (ignoring algebraic sign) of the coefficient is greater than one. In this case, price elasticity is:

$$E^d_{p_x} = \frac{\%\Delta Q^d_x}{\%\Delta P_x} = \frac{7.5\%}{-5.0\%} = -1.5$$

where

$E^d_{p_x}$ = the price elasticity

$\%\Delta Q^d_x$ = the change in quantity (in %)

$\%\Delta P_x$ = the change in price (in %)

C is incorrect because if demand is inelastic, a 1 percent price reduction increases the quantity sold by less than 1 percent.

A is incorrect because if demand is perfectly elastic, a 1 percent price reduction increases the quantity demanded by an infinitely large percentage.

Topics in Demand and Supply Analysis
LOS a
Section 2.2

41 Assume economic activity is accelerating, inflation is increasing modestly, and unemployment is low. The economy is *most likely* in which phase of the business cycle?

A Peak

B Early expansion

C Late expansion

C is correct. The late expansion phase is characterized by acceleration of growth rate, decreasing of unemployment rate, and increasing of inflation rate.

	Early Expansion	Late Expansion	Peak
Economic Activity	Gross domestic product (GDP), industrial production, and other measures of economic activity turn from decline to expansion.	Activity measures show an accelerating rate of growth.	Activity measures show decelerating rate of growth
Employment	Layoffs slow (and net employment turns positive), but new hiring does not yet occur and the unemployment rate remains high. At first, business turns to overtime and temporary employees to meet rising product demands.	Business begins full time rehiring as overtime hours rise. The unemployment rate falls to low levels.	Business slows its rate of hiring; however, the unemployment rate continues to fall.
Inflation	Inflation remains moderate and may continue to fall.	Inflation picks up modestly.	Inflation further accelerates.

A is incorrect because the peak phase is characterized by deceleration of growth rate.

B is incorrect because the early expansion phase is not characterized by low unemployment.

Understanding Business Cycles
LOS a
Section 2.1

42 Holding the working-age population constant, if the labor force participation rate declines while the number of people employed remains unchanged, the unemployment rate will *most likely*:

A remain unchanged.

B increase.

C decrease.

C is correct. For a given working-age population, a decline in the labor force participation rate (often caused by an increase in discouraged workers) reduces the labor force. If the number of people employed remains the same while the labor force becomes smaller, the number of workers defined to be unemployed must be smaller and thus the unemployment rate lower.

The following example illustrates the direction of change:

	Initial Case	After Change
Working-age population	100	100
Labor force = Employed + Unemployed	60 + 20 = 80	60 + 15 = 75
Labor force participation rate	80%	75%
Unemployment rate	20/80 = 25%	15/75 = 20%

Labor force participation rate = Labor force/Working age population
Unemployment rate = Unemployed/Labor force

A is incorrect, as per table above.
B is incorrect, as per table above.
Understanding Business Cycles
LOS d
Section 4.1

43 The unemployment rate is *best* described as the ratio of unemployed to:

A labor force.

B labor force minus frictionally unemployed.

C total population of people who are of working age.

A is correct. The unemployment rate is the ratio of unemployed to labor force.

B is incorrect because unemployment rate includes all the labor force.

C is incorrect because unemployment rate is based on the labor force and the working age. The labor force is defined as the number of people who either have a job or are actively looking for a job.

Understanding Business Cycles
LOS d
Section 4.1

44 A company's most recent balance sheet shows the following values (NZ$ thousands):

Accounts payable	3,800
Long-term debt	5,590
Other long-term liabilities	800
Common stock	1,200
Retained earnings	1,810

The company's debt-to-capital ratio is *closest* to:

A 0.77.

B 1.86.

C 0.65.

C is correct. The debt-to-capital ratio is

$$\frac{\text{Total debt}}{\text{Total debt} + \text{Total shareholders' equity}} = \frac{5{,}590}{5{,}590 + 1{,}200 + 1{,}810} = 0.650$$

where total debt includes only interest-bearing debt.

A is incorrect. It includes current liabilities and other long-term liabilities as a part of total debt: [(3,800 + 5,590 + 800)/(3,800 + 5,590 + 800 + 1,200 + 1,810)] = 0.7719.

B is incorrect. It calculates long-term debt to equity: [5,590/(1,200 + 1,810)] = 1.86.

Financial Analysis Techniques
LOS c, e
Sections 4.4.1

45 An analysis used to forecast earnings that shows the changes in key financial quantities that result from alternative sets of economic events *best* describes which of the following techniques?

A Sensitivity analysis

B Simulation

C Scenario analysis

C is correct. Scenario analysis shows the changes in key financial quantities that result from given economic events, such as the loss of customers or a catastrophic event.

A is incorrect. Sensitivity analysis, also known as "what if" analysis, shows the range of possible outcomes as specific assumptions are changed.

B is incorrect. Simulation is a computer-generated sensitivity or scenario analysis based on probability models for the factors that drive outcomes.

Financial Analysis Techniques
LOS g
Section 8

46 A company operating in a highly fragmented and competitive industry reported an increase in return on equity (ROE) over the prior year. Which of the following reasons for the increase in ROE is *least likely* to be sustainable? The company:

A increased the prices of its product significantly.

B decided to make greater use of long-term borrowing capacity.

C implemented a new IT system, allowing it to reduce working capital levels as a percentage of assets.

A is correct.

$$\text{ROE} = \frac{\text{Net income}}{\text{Revenues}} \times \frac{\text{Revenues}}{\text{Average total assets}} \times \frac{\text{Average total assets}}{\text{Average shareholders' equity}}$$

An increase in price is not sustainable in a fragmented and competitive industry. Fragmented industries tend to be highly price competitive because of the need to increase market share and undercut prices in an attempt to steal share.

B is incorrect. Increasing the use of long-term borrowing capacity will increase leverage and increase ROE and is sustainable as long as the company maintains that level of leverage.

C is incorrect. By lowering the amount of working capital in the business, the company lowered its average total assets and average shareholders' equity and increased its turnover ratio. Holding all else equal, a lower average total asset will increase the ROE through the higher turnover ratio. This strategy is sustainable because it relies on an improvement in productivity generated by new technology (new IT system).

Financial Analysis Techniques
LOS d
Section 4.6.2
Introduction to Industry and Company Analysis
LOS g
Section 5.1.2

47 The following data are available on a company:

Financial data (HK$ millions)	Current Year	Prior Year
Revenue	18,980	18,250
Cost of sales	14,600	14,040
Ending inventory	2,150	1,850
Ending accounts receivable	2,900	3,300
Ending accounts payable	2,700	2,900

Ratios	
Number of days of payables	60
Days of sales outstanding (DSO)	70
Days of inventory on hand (DOH)	40

The *least likely* explanation for the improvement in the cash conversion cycle is that the firm improved on its:

A ability to collect from customers.

B payments to suppliers.

C inventory management.

C is correct. The cash conversion cycle = DSO + DOH – Days in payables.

Days of inventory on hand (DOH)	Current Year
Cost of sales	14,600
Divided by average inventory (1,850 + 2,150)/2	2,000
= Inventory turnover	7.30

(continued)

Days of inventory on hand (DOH)	Current Year
DOH = Number of days in period/Inventory turnover	(365/7.30) = 50

Days of Sales Outstanding (DSO)	
Revenue	18,980
Divided by average accounts receivable (3,300 + 2,900)/2	3,100
= Receivables turnover	6.12
DSO = Number of days in period/Receivables turnover	(365/6.12) = 60

Number of Days of Payables	
Purchases = Cost of goods sold + Ending inventory – Beginning inventory (14,600 + 2,150 – 1,850 = 14,900)	14,900
Divided by average accounts payable (2,900 + 2,700)/2	2,800
= Payables turnover	5.32
Number of days of payables = Number of days in period/ Payables turnover	(365/5.32) = 69

Note that if purchases are unavailable, cost of goods sold can be used in the numerator for days of payables. In this case, the payables turnover would be 5.21, and the number of days of payables would be 70.

The cash conversion cycle, or net operating cycle, is calculated as follows:

	Current Year	Prior Year
DSO	60	70
Plus DOH	+50	+40
Minus number of days of payables	–69	–60
Cash conversion cycle	41	50

The company's cash conversion cycle improved. The reduction in days of sales outstanding indicates that the company improved its collections from customers and shortened the cash conversion cycle. The increase in number of days of payables indicates that the company took longer to pay suppliers, which also shortened the cash conversion cycle and indicates greater liquidity. The only metric that deteriorated is days of inventory on hand, which indicates that the company tied up more capital in inventory. Therefore, inventory management did not improve the cash conversion cycle.

A is incorrect. The reduction in days of sales outstanding indicates that the company improved its collections from customers. This also served to shorten the cash conversion cycle and indicates greater liquidity. Therefore, the response is valid as it did represent an improvement.

B is incorrect because the increase in number of days of payables indicates that the company took longer to pay suppliers, which served to shorten the cash conversion cycle and indicates greater liquidity. Therefore, the response is valid as it did represent an improvement.

Financial Analysis Techniques

LOS b

Sections 4.2, 4.3.1
Working Capital Management
LOS c
Section 2.2

48 For a company reporting under IFRS, which of the following events *most likely* represents low financial reporting quality? The company:

A included gains from foreign exchange rate changes in its cost of goods sold.

B entered a long-term lease for a customized piece of equipment and classified it as a finance lease.

C reported an increase in EPS as a result of the sale of a subsidiary.

A is correct. High financial reporting quality provides useful information to decision makers. Since foreign exchange gains and losses may not recur, they should be disclosed separately and not included in cost of goods sold.

B is incorrect. Long-term leases for customized pieces of equipment should be reported as finance leases and conforms to IFRS, therefore this is not low quality reporting.

C is incorrect. If properly disclosed, an increase in EPS from the sale of a subsidiary does not represent low quality financial reporting, but it may be low quality earnings.

Financial Reporting Quality
LOS a
Sections 2.1, 2.2, and 2.4

49 Which of the following is *most likely* a sign of inventory manipulation to improve reported financial results?

A Inventory markdowns for obsolescence.

B Declining inventory turnover ratio.

C Selective sales of older layers of inventory.

C is correct. A company can intentionally sell older, lower-cost layers of inventory to generate earnings without supporting cash flow in order to produce specific earnings benefits.

A is incorrect because a company simply may have obsolete inventory on hand that should be marked down to its net realizable value; such markdowns alone do not represent attempts to manipulate inventory in order to improve reported financial results.

B is incorrect because declining inventory turnover may be a result of obsolescence problems that should be recognized, not because of deliberate attempts to manipulate inventory in order to improve reported financial results.

Financial Reporting Quality
LOS i
Sections 4.2.3, 4.3

50 Which of the following reports is *least likely* to be filed with the US SEC?

A Annual report

B Form 10-K

C Proxy statement

A is correct. The annual report is not a requirement of the SEC.
B is incorrect. The 10-K is required by the SEC
C is incorrect. A proxy statement is required by the SEC
Financial Reporting Standards
LOS b
Section 3.2.2

51 Compared with the management discussion and analysis (MD&A), notes to the financial statements are the *most* appropriate source for:

A a comprehensive description of all of the entity's accounting policy choices.

B information on capital expenditures and how they support the entity's strategic direction.

C aspects of accounting policy choices most important to understanding the financial statements.

A is correct. The notes provide a comprehensive description of all of the entity's accounting policies, irrespective of whether judgment was required or whether the policies are important in understanding the financial statements.
B is incorrect. This is typical of MD&A disclosures.
C is incorrect. This is typical of MD&A disclosures.
Financial Reporting Standards
LOS i
Section 8.3.1

52 During the process data phase of financial statement analysis, an analyst will *most likely* develop a:

A statement of purpose.

B common-size balance sheet.

C statement of cash flows.

B is correct. During the process data phase, an analyst will produce a variety of reports and documents based on the information collected. These may include common-size statements, ratios and graphs, forecasts, adjusted statements, and analytical results.
A is incorrect. The statement of purpose is prepared during the articulation phase.
C is incorrect. The statement of cash flows is a source of information for the analyst.
Financial Statement Analysis: An Introduction
LOS f
Section 4

53 The following information is available about a company:

($ thousands)	2013	2012
Deferred tax assets	200	160
Deferred tax liabilities	–450	–360

($ thousands)	2013	2012
Net deferred tax liabilities	–250	–200
Earnings before taxes	4,000	3,800
Income taxes at the statutory rate	1,200	1,140
Income tax payable (Current income tax expense)	1,000	900

The company's 2013 income tax expense (in thousands) is *closest* to:

A $1,250.

B $950.

C $1,050.

C is correct. Income tax expense reported on the income statement = Income tax payable + Net changes in the deferred tax assets and deferred tax liabilities. The change in the net deferred tax liability is a $50 increase (indicating that the income tax expense is $50 in excess of the income tax payable, or current income tax expense) and represents an increase in the expense. Therefore, the income tax expense = $1,000 + $50 = $1,050.

A is incorrect. It is the income tax payable plus the net deferred tax liability, not just the change in the net liability: $1,000 + 250 =$1,250.

B is incorrect. Incorrectly subtracts the net deferred tax liability: $950 = $1,000 – $50.

Income Taxes
LOS d, i
Sections 2.1, 2.2

54 Which of the following inventory valuation methods *best* matches the actual historical cost of the inventory items sold to their physical flow?

A LIFO

B FIFO

C Specific identification

C is correct. Specific identification best matches the physical flow of the inventory items because it tracks the actual units that are sold.

A is incorrect. LIFO is based on cost flow assumptions but does not necessarily match the actual physical movement of the goods.

B is incorrect. FIFO is based on cost flow assumptions but does not necessarily match the actual physical movement of the goods.

Inventories
LOS b
Sections 3.1, 3.2, 3.4

55 Selected financial information about a company is provided in the table:

(€ millions)	2014	2013
Sales	4,448	4,246
Inventories		

(continued)

(€ millions)	2014	2013
Raw materials	125	141
Work in process	230	240
Finished goods	410	296
Supplies and other	73	72
Valuation allowance	–133	–118
Total	705	631

Which of the following conclusions is *most* accurate based on the foregoing information?

A The company faces a strong possibility of future write-downs.

B The price of supplies increased significantly.

C Management anticipates a strong increase in product demand.

A is correct. The company experienced a large buildup of finished goods (38% increase) and a decline in both raw materials (–11.3%) and work in process (–4.0%). This scenario suggests a decline in demand for the company's products and a strong likelihood of future write-downs. Supplies grew by less than 2.0%, but sales increased by less than 5.0%, so it is unlikely that the price of supplies increased significantly.

B is incorrect. Supplies have grown by less than 2.0%, but sales have increased by just under 5.0%, so it is unlikely that there has been a significant increase in the price of supplies.

C is incorrect. There is a large buildup of finished goods (38% increase) and a decline in both raw materials (–11.3%) and work in process (–4.0%). This suggests a decline in demand for the firm's products.

Inventories
LOS j
Section 7.3

56 The following excerpt was taken from the notes of a company's financial statements that were prepared in accordance with International Financial Reporting Standards. All figures are in thousands of Australian dollars.

Note 12 **Broadcast Licenses**

During 2014, the company successfully disposed of broadcast licenses that were held for sale for A$37,900 (net book value of A$23,500). Based on the successful completion of that sale, the impairment losses taken in 2012 on other licenses have been reversed, restoring those intangible assets to their amortized historical cost. Broadcast licenses are amortized over a period of 15–25 years.

The note leads an analyst to believe that the rapid reversal of the impairment loss related to the broadcast licenses arose as an attempt by management to manage earnings.

If the analyst's belief is correct, her analysis of the original 2013 financial statements would *most likely* have shown that, compared with the economic reality in 2013, the company had:

A understated ROA.

B understated fixed asset turnover.

C overstated net profit margin.

C is correct. The broadcast licenses were written down in 2012, but the write-down was reversed in 2014. Therefore, during 2013 the intangible assets were understated, which would have understated amortization expense for the year and increased profit. Thus, in 2013 net profit margin was overstated.

A is incorrect. In 2013 the intangible assets were understated, and net profit was overstated (due to the lower amortization expense); therefore, ROA would have been overstated in 2013, not understated.

B is incorrect. In 2013 the intangible assets were understated, which would have increased asset turnover (Sales/Average total assets), so it would have been overstated during the year.

Long-Lived Assets
LOS m, k
Sections 5.2 and 5.5
Financial Reporting Quality
LOS h, i
Sections 4.2.1 and 4.2.3

57 Which of the following is *most likely* a reason that a lessor can offer attractive lease terms and lower cost financing to a lessee?

A The lessor retains the tax benefits of ownership.

B The lessor avoids reporting the liability on its balance sheet.

C The lessee is better able to resell the asset at the end of the lease.

A is correct. The lessor often retains the tax benefits of ownership of the leased asset, which allows the lessor to pass those savings along to the lessee in the form of lower financing costs or other attractive terms.

B is incorrect. Not reporting the liability on the balance sheet is an advantage to the lessee of leasing, but is not a reason that the lessor can offer lower attractive terms.

C is incorrect: The lessor, not the lessee is often in a better position to resell the asset at the end of its life, and that allows the lessor to pass that benefit along to the lessee in the form of lower cost financing.

Non-Current (Long-term) Liabilities
LOS f
Section 3.1

58 Liabilities of a company equal:

A assets plus equity.

B equity minus assets.

C assets minus equity.

C is correct. The assets of a company are equal to sum of its liabilities and stockholders' equity: A = L + E. Therefore, liabilities are equal to assets minus equity: L = A – E.

A is incorrect because liabilities are equal to assets minus equity.

B is incorrect because equity is equal to assets minus liabilities.

Understanding Balance Sheets
LOS a

Sections 2.0

59 In the statement of cash flows, interest paid by a company is *most likely* included in:

A either the operating or financing section under US GAAP.

B either the operating or financing section under IFRS.

C only the financing section under both IFRS and US GAAP.

B is correct. US GAAP requires that interest paid be classified as an operating cash flow; IFRS allows interest paid to be classified as either an operating or financing activity.

A is incorrect. US GAAP requires that interest paid be classified as an operating cash flow; IFRS allows interest paid to be classified as either an operating or financing activity.

C is incorrect. US GAAP requires that interest paid be classified as an operating cash flow; IFRS allows interest paid to be classified as either an operating or financing activity.

Understanding Cash Flow Statements
LOS c
Sections 2.1, 2.2

60 In applying the principles of expense recognition, companies should:

A record any estimates of uncollectible amounts as a direct reduction of revenues.

B exclude costs of intangible assets with indefinite useful lives.

C recognize credit losses on customer receivables when defaults occur.

B is correct. The two main types of long-lived assets whose costs are not allocated over time are land and those intangible assets with indefinite useful lives.

A is incorrect because a company records an estimate of uncollectible amounts as an expense on the income statement, not as a direct reduction of revenues.

C is incorrect because, under the matching principle, at the time revenue is recognized on a sale, a company is required to record an estimate of how much of the revenue will ultimately be uncollectible.

Understanding Income Statements
LOS e
Section 4.2.1

61 The following table summarizes income statement data for a manufacturing company:

	2020 (€ thousands)	2021 (€ thousands)
Net Revenue	2,325	2,611
Cost of Goods Sold	1,550	1,700
Gross Profit	775	930
Selling, General & Administrative Expense	260	295
Operating Income	515	635

	2020 (€ thousands)	2021 (€ thousands)
Interest Expense	55	55
Pre-Tax Income	460	580
Income Tax	120	155
Net Income	340	425

Compared with 2020, the 2021 common-size income statement most likely indicates:

A a lower tax rate.

B cost cutting in selling, general and administration.

C sale of a new, differentiated product.

C is correct. Gross profit margin improved from 33.3% (€775/€2,325) to 35.6% (€930/€2,611). This may be reflective of selling a new, more highly differentiated product.

A is incorrect because the tax rate (which is expressed as tax paid as a percentage of net income) increased year over year, from 26.1% (€120/€460) to 26.7% (€155/€580). This is also true of tax paid as a percentage of revenue, which increased from 5.2% (€120/€2,325) to 5.9% (€155/€2,611) year over year. The company's profitability was reduced because of the higher tax rate.

B is incorrect because SG&A as a percentage of revenue slightly increased year over year: 2010 = €260/€2,325 = 11.2% and 2011 = €295/€2,611 = 11.3%.

Understanding Income Statements
LOS k
Section 7.2

62 A firm is considering a project that would require an initial investment of THB270 million (Thai baht). The project will help increase the firm's after-tax net cash flows by THB30 million per year in perpetuity, and it is found to have a negative NPV of THB20 million. The IRR (%) of the project is *closest* to:

A 11.1%.

B 10.3%.

C 12.0%.

A is correct. The IRR is the discount rate that makes the NPV = 0. Because the cash flow stream is in perpetuity, it can be solved as follows:

0 = –270 + (30/IRR)
IRR = 11.1%

B is incorrect. It assumes a positive NPV of 20 and solves for IRR = 30/290 = 10.34%.

C is incorrect. It assumes a negative NPV of 20 and solves for IRR = 30/250 = 12.00%.

Capital Budgeting
LOS d
Section 4.2

63 A project has the following annual cash flows:

Year 0	Year 1	Year 2	Year 3
–$606,061	$2,151,515	–$2,542,424	$1,000,000

Which discount rate *most likely* provides a positive net present value (NPV)?

A. 15%

B 21%

C 18%

B is correct.

Year	Cash Flow	K = 15%	K = 18%	K = 21%	Calculation
0	–$606,061	–$606,061.00	–$606,061.00	–$606,061.00	–606,061
1	2,151,515	1,870,882.60	1,823,317.80	1,778,111.60	+2,151,515/(1 + K)
2	–2,542,424	–1,922,437.80	–1,825,929.30	–1,736,509.80	$-2,542,424/(1 + K)^2$
3	1,000,000	657,516.20	608,630.90	564,473.90	$+1,000,000/(1 + K)^3$
	NPV	–$100.00	–$41.60	+$14.70	K = Discount rate

The NPV at 21% is $14.7, whereas the other two NPVs are negative.
A is incorrect because it has a negative NPV.
C is incorrect because it has a negative NPV.
Capital Budgeting
LOS d, e
Sections 4.1, 4.9

64 Which of the following is *most likely* associated with a strong corporate code of ethics? The code of ethics is:

A updated at least every 10 years.

B signed by employees on a voluntary basis.

C developed and its implementation overseen by the governance committee.

C is correct. The governance committee typically develops and oversees implementation of the company's code of ethics.

A is incorrect. The code of ethics should be reviewed on a regular basis to incorporate relevant developments and new regulatory requirements. A review period of 10 years is too long.

B is incorrect. Codes of ethics establish the company's values and standards of ethical behavior and must be followed.

Corporate Governance and ESG: An Introduction
LOS e
Section 5.3.2, 4.2.9

65 A company's management team is proposing to sell a major division because of low future growth prospects in that industry. To which committee of the board is the proposal *most likely* to be presented?

A Risk

B Audit

C Investment

C is correct. Management is most likely to present the proposed sale to the investment committee, whose main role is to review the viability of material investment opportunities proposed by management.

A is incorrect. Assessing proposed investment or divestment opportunities is the primary role of the investment committee, not the risk committee. The risk committee assists the board in determining the risk policy, profile, and appetite of the company.

B is incorrect. Assessing proposed investment or divestment opportunities is the primary role of the investment committee, not the audit committee.

Corporate Governance and ESG: An Introduction
LOS f
Section 5.3.6

66 A consultant sees the following information about a publicly listed company:

- The company has a 12-person board of directors.
- The board is chaired by the chief executive officer (CEO) of the company.
- All members of the audit committee are outside directors with relevant financial and accounting experience.

Which of the following changes would provide the *greatest* improvement in the corporate governance of this company?

A The chairman of the board should be an independent director.

B The company's Vice President of Finance should be a member of the audit committee.

C The board of directors should have an odd number of directors to preclude tied votes.

A is correct. In good corporate governance practices the chair of the board and CEO roles are independent. If the chair of the board is a chief executive of the company, it may hamper efforts to undo the mistakes made by him or her as chief executive. There is a general trend in governance toward reduced influence for executive directors, as exemplified by the decreasing incidence of CEO duality.

B is incorrect. All members of the audit committee should be independent members of the board.

C is incorrect. There is no single optimal number of directors, either odd or even.

Corporate Governance and ESG: An Introduction
LOS f
Section 5.1

67 Which of the following scenarios can *best* be described as offering superior protection of shareholder interests?

A When common law is practiced

B When CEO duality is common

C When stakeholder theory prevails

A is correct. Unlike civil law systems, common law systems provide judges with the ability to create law by setting precedents that are followed in subsequent cases. Shareholders are viewed as better protected under common law because judges may rule against management actions in situations that are not specifically addressed by statutes.

B is incorrect. Under CEO duality, the CEO also serves as chairperson of the board. All else equal, this decreases the protection of shareholder interests in favor of those of management.

C is incorrect. Stakeholder theory incorporates the interests of non-shareholders such as customers, suppliers, and employees. This inevitably dilutes the focus on shareholders.

Corporate Governance and ESG: An Introduction
LOS g
Section 6.2.1

68 A firm with a marginal tax rate of 40% has a weighted average cost of capital of 7.11%. The before-tax cost of debt is 6%, and the cost of equity is 9%. The weight of equity in the firm's capital structure is *closest* to:

A 79%.

B 65%.

C 37%.

B is correct.

WACC = $w_d r_d(1 - t) + w_e r_e$, where $w_d + w_e = 1$
$7.11 = (1 - w_e) \times 6 \times (1 - 0.4) + w_e \times 9$
$w_e = 65\%$

A is incorrect. It is calculated by dividing 7.11 by 9.

C is incorrect. It fails to adjust debt for taxes.

Cost of Capital
LOS b
Section 2.1

69 Which method of calculating the firm's cost of equity is most likely to incorporate the long-run return relationship between the firm's stock and the market portfolio?

A Capital asset pricing model

B Dividend discount model

C Bond yield plus risk premium approach

A is correct. The capital asset pricing model uses the firm's equity beta, which is computed from a market model regression of the company's stock returns against market returns.

B is incorrect. Dividend discount model estimates the equity risk premium by adding the dividend yield and the growth rate in dividends.

C is incorrect. Cost of equity under this method is the additional of cost of debt and risk premium (the additional yield on a company's stock relative to its bonds).

Cost of Capital
LOS h
Section 3.3

70 Which of the following is *least likely* to be a component of a developing country's equity premium?

A Annualized standard deviation of the developing country's equity index

B Sovereign yield spread

C Annualized standard deviation of the sovereign bond market in terms of the developing country's currency

C is correct. The annualized standard deviation of the sovereign bond market in terms of the developing country's currency is not part of the equity premium calculation.

$$\text{Country equity premium} = \text{Sovereign yield spread} \times (\text{Annualized standard deviation of equity index}/\text{Annualized standard deviation of the sovereign bond market in terms of the developed market currency})$$

A is incorrect because the annualized standard deviation on a developing country's index is part of the country's equity premium.

B is incorrect because the sovereign yield spread is part of the country equity premium.

Cost of Capital
LOS j
Section 4.2

71 Financial risk is *least likely* affected by:

A debentures.

B dividends.

C long-term leases.

B is correct. By taking on fixed obligations, such as debt (including debentures) and long-term leases, a company increases its financial risk. Dividends will not increase financial risk.

A is incorrect because the use of debentures (one type of bond) is directly associated with financial risk.

C is incorrect because the use of long-term leases is directly related to financial risk.

Measures of Leverage
LOS a
Section 3.4

72 Which of the following is *most likely* a secondary source of liquidity?

A Bank line of credit

B Inventory liquidation

C Trade credit

B is correct. Trade credit and a bank line of credit are considered primary sources of liquidity. Liquidating inventory is a secondary source of liquidity.

A is incorrect because it is a primary source of liquidity.

C is incorrect because it is a primary source of liquidity.

Working Capital Management

LOS a

Section 2.1.1, 2.1.2

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73 A 30-day $10,000 US Treasury bill sells for $9,932.40. The discount basis yield (DBY) is *closest* to:

A 8.11%.

B 8.17%.

C 8.28%.

A is correct.

$$\text{DBY} = \frac{\text{Face value} - \text{Purchase price}}{\text{Face value}} \times \frac{360}{\text{Days to maturity}}$$

$$= \frac{\$10{,}000 - \$9{,}932.40}{\$10{,}000} \times \frac{360}{30}$$

$$= 8.11\%$$

B is incorrect because it is the money market yield.

$$\text{MMY} = \frac{\$10{,}000 - \$9{,}932.40}{\$9{,}932.40} \times \frac{360}{30}$$

$$= 8.167\%$$

C is incorrect because it is the bond equivalent yield.

$$\text{BEY} = \frac{\$10{,}000 - \$9{,}932.40}{\$9{,}932.40} \times \frac{365}{30}$$

$$= 8.281\%$$

Working Capital Management

LOS e

Section 4.1.1

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74 A 35-year-old financial analyst expects to retire at the age of 65 and is interested in investing to fund her retirement. She describes herself as being financially astute with average risk tolerance. Which asset class is *least likely* to be suitable for a majority allocation in her portfolio to meet her retirement needs?

A Long-term bonds

B US Treasury bills

C Exchange-listed equities

B is correct. The investor has a 30-year time horizon and average risk tolerance, so she is able to accept the additional risk associated with exchange-listed equities and long-term bonds compared with US Treasury bills.

A is incorrect because the investor has a 30-year time horizon and average risk tolerance, so she is able to accept the additional risk associated with long-term bonds compared with US Treasury bills.

C is incorrect because the investor has a 30-year time horizon and average risk tolerance, so she is able to accept the additional risk associated with exchange-listed equities compared with US Treasury bills.

Basics of Portfolio Planning and Construction
LOS e
Section 2.2

75 Which of the following is *least likely* true for a separately managed account (SMA) compared with a mutual fund?

A Assets are directly owned by the individual.

B The minimum investment required to open a SMA is lower than that of a mutual fund.

C Transactions can be tailored to the specific tax needs of the investor.

B is correct. The minimum investment required to open a separately managed account is usually much higher than that to open a mutual fund.

A is incorrect because SMA assets are directly owned by the individual. The investor has control over which assets are bought and sold as well as the timing of the transactions.

C is incorrect because SMA transactions can be tailored to the specific tax needs of the investor.

Portfolio Management: An Overview
LOS e
Section 5.3.2

76 Based on the information in the table, which of the following is *closest* to the geometric mean annual return for the full period of 2010–2014?

	Annual Return
12/31/2010	–8.0%
12/31/2011	–5.5%
12/31/2012	–7.2%
12/31/2013	20.8%
12/30/2014	4.4%

A 0.90%

B 1.75%

C 0.35%

C is correct. The geometric mean annual return is computed multiplicatively as the *n*th root of the holding period.

$$\sqrt[5]{(1-8.0\%)\times(1-5.5\%)\times(1-7.2\%)\times(1+20.8\%)\times(1+4.4\%)}-1=0.35\%$$

A is incorrect. It reflects the arithmetic mean annual return.
(–8.0% – 5.5% – 7.2% + 20.8% + 4.4%)/5 = 0.90%
B is incorrect. It reflects the holding period return.
(1 – 8.0%) × (1 – 5.5%) × (1 – 7.2%) × (1 + 20.8%) × (1 + 4.4%) – 1 = 1.75%
Portfolio Risk and Return: Part I
LOS a
Section 2.1

77 A portfolio has the following returns:

	Portfolio Returns
2006	2.4%
2007	9.6%
2008	–4.0%
2009	5.6%
2010	4.8%
2011	–3.2%

The sample variance of the portfolio is closest to:

A 0.23%.

B 0.36%.

C 0.28%.

C is correct. The sample variance is calculated as the sum of squared deviations from the arithmetic mean.

$$\text{Mean} = (2.4\% + 9.6\% - 4.0\% + 5.6\% + 4.8\% - 3.2\%)/6 = 2.5\%$$

$$\text{Sample variance} = (\text{Sum of squared deviations})/(N-1)$$

$$= \frac{(2.4\%-2.5\%)^2+(9.6\%-2.5\%)^2+(-4.0\%-2.5\%)^2+(5.6\%-2.5\%)^2+(4.8\%-2.5\%)^2+(-3.2\%-2.5\%)^2}{5}$$

$$= 0.28\%$$

A is incorrect. This is the calculation for population variance, which differs from the calculation for sample variance by the use of *N* in the denominator.

$$\text{Mean} = (2.4\% + 9.6\% - 4.0\% + 5.6\% + 4.8\% - 3.2\%)/6 = 2.5\%$$

$$\text{Population variance} = (\text{Sum of squared deviations})/(N)$$

$$= \frac{(2.4\%-2.5\%)^2+(9.6\%-2.5\%)^2+(-4.0\%-2.5\%)^2+(5.6\%-2.5\%)^2+(4.8\%-2.5\%)^2+(-3.2\%-2.5\%)^2}{6}$$

$$= 0.23\%$$

B is incorrect. The correct calculation requires subtraction of the mean before the values are squared and summed. This calculation is the sum of squares of the returns, not of the deviations.

$$\begin{aligned}\text{Incorrect calculation} &= (\text{Sum of squared returns})/(N-1)\\ &= \frac{(2.4\%)^2 + (9.6\%)^2 + (-4.0\%)^2 + (5.6\%)^2 + (4.8\%)^2 + (-3.2\%)^2}{5}\\ &= 0.36\%\end{aligned}$$

Portfolio Risk and Return: Part I
LOS c
Section 4.1.3

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78 A return-generating model that provides an estimate of the expected return of a security based on such factors as earnings growth and cash flow generation is *best* described as a:

A market factor model.

B fundamental factor model.

C macroeconomic factor model.

B is correct. A return-generating model based on such factors as earnings growth and cash flow generation is a fundamental factor model.

A is incorrect. In a market model, the factor is the market return.

C is incorrect. In a macroeconomic factor model, appropriate factors would be economic factors such as the interest rate and the inflation rate.

Portfolio Risk and Return: Part II
LOS d
Section 3.2.1

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79 The stock of GBK Corporation has a beta of 0.65. If the risk-free rate of return is 3% and the expected market return is 9%, the expected return for GBK is *closest* to:

A 10.8%.

B 3.9%.

C 6.9%.

C is correct.

$$\begin{aligned}E(R_{GBK}) &= R_f + \beta_{GBK} \times [E(R_{Mkt}) - R_f]\\ &= 0.03 + 0.65 \times (0.09 - 0.03)\\ &= 0.069\end{aligned}$$

A is incorrect. It is incorrectly calculated as $0.03 + 0.65 \times (0.09 + 0.03) = 0.108$.

B is incorrect. It is incorrectly calculated as $E(R_{GBK}) = 0.65 \times (0.09 - 0.03) = 0.039$.

Portfolio Risk and Return: Part II
LOS g

Section 3.2.6

80 A successful portfolio risk budget will *most likely*:

A lead to investment in assets with the highest return per unit of risk.

B be based on multiple sources of risk.

C produce superior performance compared to passive investing.

A is correct. Whether the risk budgeting process focuses explicitly on it or not, it should result in choosing assets based on their ability to add the best return for each unit of the risk budget they use. Although some risk budgeting processes consider multiple risk sources, even a process based on a single risk can provide substantial benefits to an organization. While risk budgeting focuses on allocating the portfolio's risk tolerance to its best uses, this does not necessary define a portfolio that will beat passive benchmarks. Risk might be best budgeted to passive investments.

B is incorrect because a portfolio risk budgeting process using only a single simple risk measure can provide substantial benefits to the organization

C is incorrect because risk budgeting need not result in active investment decisions; the superior sources of return per unit of risk might be passive investment vehicles.

Risk Management: An Introduction
LOS e
Section 3.3

81 Expected future benefits to be received from a common share are *most likely* an important input for a(n):

A asset-based model.

B multiplier model.

C present value model.

C is correct. Present value models estimate a security's intrinsic value based on the present value of the future benefits expected to be received from the security.

A is incorrect. Asset-based valuation models estimate the intrinsic value of a common share from the estimated value of assets of a corporation minus the estimated value of its liabilities and preferred shares.

B is incorrect. Multiplier models are based chiefly on share price multiples or enterprise value multiples.

Equity Valuation: Concepts and Basic Tools
LOS b
Section 3

82 An analyst gathered the following information about a company:

Current earnings per share	$6.00
Current dividend per share	$2.40
Current market price per share	$35
Required rate of return on the stock	15.0%
Expected growth rate of earnings and dividends	8.0%

Which of the following statements best describes the company's price-to-earnings ratio (P/E)? Compared to the company's trailing P/E ratio, the justified forward P/E ratio based on the Gordon growth dividend discount model is:

A the same.

B higher.

C lower.

C is correct.

Trailing P/E ratio = $\frac{\text{Current stock price}}{\text{Current earnings per share}} = \frac{35}{6} = 5.83$

P/E ratio based on the Gordon growth dividend discount model

$$= \frac{D_1/E_1}{r-g} = \frac{(2.4 \times 1.08)/(6 \times 1.08)}{0.15 - 0.08} = 5.71$$

A is incorrect. P/E ratio based on the Gordon growth dividend discount model is greater than trailing P/E ratio.

B is incorrect. It uses earnings for next year to calculate the trailing P/E ratio.

Trailing P/E ratio = $\frac{\text{Current stock price}}{\text{Current earnings per share}} = \frac{35}{6 \times 1.08} = 5.40$

P/E ratio based on the Gordon growth dividend discount model

$$= \frac{D_1/E_1}{r-g} = \frac{(2.4 \times 1.08)/(6 \times 1.08)}{0.15 - 0.08} = 5.71$$

Equity Valuation: Concepts and Basic Tools
LOS i, j
Section 5

83 A firm reports negative earnings for the year just ended. The price multiple of the firm's stock that is *least likely* to be meaningful is:

A trailing price to earnings.

B price to cash flow.

C leading price to earnings.

A is correct. Negative earnings in the last year result in a negative ratio of trailing price to earnings and are not meaningful. Practitioners may use the ratio of (1) current price to cash flow or (2) leading price to earnings by replacing last year's loss with forecasted earnings.

B is incorrect. Alternative to negative trailing price-to-earnings ratio, practitioners may use price-to-cash-flow ratio because it is possible cash flow would be positive in spite of a small loss.

C is incorrect. Alternative to negative trailing price-to-earnings ratio, practitioners may use leading price-to-earnings ratio by replacing last year's loss with forecasted earnings which may be positive.

Equity Valuation: Concepts and Basic Tools
LOS j
Section 5

84 A fund manager compiles the following data on two companies:

	Company A	Company B
Return on assets (ROA)	10.9%	9.0%
Return on equity (ROE)	15.4%	14.3%
Dividend payout ratio	0.35	0.30
Required rate of return	13.0%	12.4%
Weighted average cost of capital	11.8%	11.7%

The *best* conclusion the fund manager can make is that Company A's stock is more attractive than Company B's stock because of its:

A smaller price-to-earnings ratio (P/E).

B greater financial leverage.

C higher dividend growth rate.

A is correct. From the following computations, Company A's stock is more attractive than Company B's stock because of its smaller P/E.

	Company A	Company B
Dividend growth rate (g) g = ROE × (1 − Dividend payout ratio)	15.4 × (1 − 0.35) = 10.0%	14.3 × (1 − 0.30) = 10.0%
P/E = Dividend payout ratio/($r - g$)	0.35/(0.13 − 0.10) = **11.7x**	0.30/(0.124 − 0.10) = **12.5x**
Financial leverage (ROE/ROA)	15.4/10.9 = 1.4x	14.3/9.0 = 1.6x

B is incorrect. Company A's financial leverage is lower than that of Company B.
C is incorrect. The dividend growth rate is the same for both firms.
Financial Analysis Techniques
LOS d
Section 4.6.2
Equity Valuation: Concepts and Basic Tools
LOS j
Section 5.1

85 Which of the following firms would be *best* classified as operating in a consumer discretionary industry?

A Tobacco manufacturer

B Biotechnology

C Hotel

C is correct. Consumer discretionary companies derive a majority of revenue from the sale of consumer-related products or services for which demand tends to exhibit a relatively high degree of economic sensitivity. A hotel would be an example of a business activity that falls into this category.

A is incorrect. The consumer staples sector includes consumer-related companies whose business tends to exhibit less economic sensitivity than other companies. Examples of business activities that frequently fall into this category are tobacco manufacturers. Tobacco is an example of a consumer staple name whose business is less economically sensitive.

B is incorrect. Biotechnology fits in the health care sector, which does not tend to exhibit a high degree of economic sensitivity.

Introduction to Industry and Company Analysis
LOS b
Section 4.1.4

86 When constructing a list of peer companies to be used in equity valuation, which of the following would *least likely* improve the group? Companies in the same peer group should ideally:

A be exposed to similar stages in the business cycle.

B have similar valuations.

C have the effects of finance subsidiaries minimized.

B is correct. Companies in the same peer group can have different valuations depending on structure and competitiveness.

A is incorrect. Valuations may be of limited value when comparing companies that are exposed to different stages of the business cycle.

C is incorrect. To make a meaningful comparison of companies, analysts should make adjustments to the financial statements to lessen the impact that the finance subsidiaries have on the various financial metrics being compared.

Introduction to Industry and Company Analysis
LOS d
Section 4.4

87 The following table shows information on three different investment strategies with equivalent systematic risk:

		Annualized Data	
Strategy	**Type of Strategy**	**Fees and Expenses**	**Net Return**
1	Passive	0%	15%
2	Exploits price patterns	1%	14%
3	Uses fundamental analysis	2%	

The return, gross of fees and expenses, that causes Strategy 3 to be *most* consistent with the strong form of market efficiency is:

A 18%.

B 16%.

C 17%.

C is correct. For a violation of the strong form of market efficiency to occur, the strategy based on fundamental analysis must achieve a net return higher than the net return of the passive strategy, on a risk-adjusted basis. This threshold corresponds to 15% because both strategies had the same systematic risk and the passive strategy has no fees or expenses. To find the gross return on the strategy that uses fundamental analysis, the fees and expenses must be added to the net return: Gross return = Net return + Fees and expenses = 15% + 2% = 17%. Anything in excess of 17% would violate the strong-form of market efficiency for the fundamental analysis strategy.

A is incorrect. 18% erroneously uses the information provided in the table. In this example, it is simply the result of the addition of the net return and the fees and expenses of Strategy 2 and 3: 14% + 1% + 2% = 18%.

B is incorrect. It uses as starting point the net return of the strategy that exploits price patterns (another active strategy, based on technical analysis) rather than the passive one: 14% + 2% = 16%. In order to claim a violation of the semi-strong-form of market efficiency, the strategy based on fundamental analysis has to outperform the passive strategy (net of fees and expenses), not the strategy based on technical analysis. Alternatively, 16% could also be found if the fees and expenses of Strategy 2, rather than Strategy 3, are used: 15% + 1% = 16%.

Market Efficiency
LOS e, a
Sections 3.4 and 2.1

88 An asset-based valuation model is *most* applicable for a company with significant:

A intangible assets.

B property, plant, and equipment.

C proportions of current assets and current liabilities and few intangible assets.

C is correct. Asset-based valuations work well for companies that do not have a high proportion of intangible or "off the books" assets and that do have a high proportion of current assets and current liabilities.

A is incorrect because when a company has significant intangibles, the analyst should prefer a forward-looking cash flow valuation to an asset-based valuation model.

B is incorrect because companies with assets that do not have easily determinable market (fair) values—such as those with significant property, plant, and equipment—are very difficult to analyze using asset-based valuation methods.

Equity Valuation: Concepts and Basic Tools
LOS j
Section 6

89 A trader buys a stock at $64 on margin with a leverage ratio of 2.5 and a maintenance margin of 30%. Below what price will a margin call *most likely* occur?

A $36.57

B $54.86

C $44.80

B is correct.

Equity = $\frac{1}{\text{Leverage ratio}} = \frac{1}{2.5} = 0.4$

Initial equity = \$64 × 0.4 = \$25.60

Critical "*P*" for margin call = $\frac{\text{Equity}}{\text{Share}} \div \frac{\text{Price}}{\text{Share}} = \frac{\$25.60 + P - \$64}{P} = 30\%$

P = \$54.86

Alternate solution:

$$\frac{\text{Debit balance}}{1 - \text{maintenance margin\%}} = \frac{64 \times 0.6}{1 - 0.3} = \$54.86$$

A is incorrect. Mistakes 60% as initial equity.

Initial equity = \$64 × 0.6 = \$38.40

$$\frac{\$38.40 + P - \$64}{P} = 30\%$$

P = \$36.57

C is incorrect. Simply takes 70% of the original purchase price by mistaking (1 – maintenance margin %) to be equal to the critical price for margin call = 64 × 0.7 = **\$44.80**.

Market Organization and Structure

LOS f

Section 5.2

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90 Compared with public equity markets, which of the following statements is *most* accurate about private equity markets? Operating in the private market:

A offers stronger incentives to improve corporate governance.

B allows more opportunities to raise capital.

C allows management to better adopt a long-term focus.

C is correct. The management of a public firm is under pressures to meet shorter-term demands, such as meeting quarterly sales and earnings projections from analysts. Private owners are thus better able to focus on longer-term value creation opportunities.

A is incorrect. By operating under public scrutiny, companies are incentivized to be more open in terms of corporate governance and executive compensation to ensure that they are acting for the benefit of shareholders.

B is incorrect because public equity markets are much larger than private ones.

Overview of Equity Securities

LOS c

Section 4

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91 A company just paid an annual dividend of €1.25 per share. If the required annual rate of return is 14% and dividends are expected to grow indefinitely at a constant rate of 8%, the company's intrinsic value per share is:

A €16.88.

B €20.83.

C €22.50.

C is correct. The value of the shares can be estimated using the Gordon growth model as follows:

$$V_0 = \frac{€1.25(1.08)}{0.14 - 0.08} = \frac{€1.35}{0.06}$$

V_0 = €22.50

A is incorrect because €16.88 is derived using the growth rate in the denominator of the formula instead of the difference between the required rate of return and the growth rate:

V_0 = €1.35/0.08 = €16.88

B is incorrect because €20.83 results from incorrectly using D_0 (instead of D_1) as the next period dividend:

V_0 = €1.25/0.06 = €20.83

Equity Valuation: Concepts and Basic Tools
LOS e
Section 4.2

92 The index weighting that results in portfolio weights shifting away from securities that have increased in relative value toward securities that have fallen in relative value whenever the portfolio is rebalanced is *most* accurately described as:

A float-adjusted market-capitalization weighting.

B fundamental weighting.

C equal weighting.

B is correct. Fundamentally weighted indexes generally will have a contrarian "effect" in that the portfolio weights will shift away from securities that have increased in relative value and toward securities that have fallen in relative value whenever the portfolio is rebalanced.

A is incorrect. In the float-adjusted market-capitalization weighting scheme, the constituent securities whose prices have risen the most (or fallen the most) have a greater (or lower) weight in the index.

C is incorrect. In an equal weighting scheme, securities that constitute the largest fraction of the target market value are underrepresented and securities that constitute a small fraction of the target market value are overrepresented. This weighting scheme does not consider fundamental measures in rebalancing.

Security Market Indexes
LOS d, f
Section 3.2.4

93 In futures markets, contract performance is *most likely* guaranteed by:

A the futures exchanges.

B regulatory agencies.

C clearing houses.

C is correct. Clearing houses arrange for financial settlement of trades. In futures markets, they guarantee contract performance.

A is incorrect. The futures exchange facilitates transactions but it does not guarantee contract performance.

B is incorrect. Regulatory agencies do not guarantee contract performance in futures markets.

Market Organization and Structure
LOS d
Section 3.4.2

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94 Which of the following embedded options *most likely* provides a right to the issuer?

A Conversion provision

B Put feature

C Call feature

C is correct. The right to call the issue is beneficial to the issuer when interest rates fall.

A is incorrect because the conversion provision grants the bondholder the right to convert the bond for a specified number of shares of common stock. Such a feature allows the bondholder to take advantage of favorable movements in the price of the issuer's common stock.

B is incorrect because the right to put the issue is an option granted to the bondholder to sell the bond back to the issuer at a predetermined price on specified dates before maturity.

Fixed-Income Markets: Issuance, Trading, and Funding
LOS g
Section 6.3.5

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95 An analyst reviews a corporate bond indenture that contains these two covenants:

1 The borrower will pay interest semiannually and principal at maturity.

2 The borrower will not incur additional debt if its debt-to-capital ratio is more than 50%.

What types of covenants are these?

A Covenant 1 is affirmative, and Covenant 2 is negative.

B Both are affirmative covenants.

C Covenant 1 is negative, and Covenant 2 is affirmative.

A is correct. Paying interest and principal is one of the most common affirmative covenants. Negative covenants set forth certain limitations and restrictions on the borrower's activities. The more common restrictive covenants are those that impose limitations on the borrower's ability to incur additional debt, such as specifying a debt-to-capital ratio, unless certain tests are satisfied.

B is incorrect because Covenant 2 is a negative covenant.

C is incorrect because the types of covenants has been reversed.

Fixed-Income Securities: Defining Elements
LOS c
Section 3.1

96 Using the "Four Cs of Credit Analysis" framework, which of the following is the *least likely* factor to be considered under the category of "capacity"?

A Level of competition

B Industry fundamentals

C History of fraud or malfeasance

C is correct. Any history of fraud or malfeasance is a major warning flag to credit analysts under the category of "Character."

A is incorrect because level of competition is part of the "Capacity" analysis for industry structure.

B is incorrect because company fundamentals is under the category of "Capacity" for credit analysis.

Fundamentals of Credit Analysis
LOS e
Section 5.2

97 Compared with investment-grade bonds, the spread movements on high-yield bonds are influenced:

A less by interest rate changes and exhibit a greater correlation with movements in equity markets.

B less by interest rate changes and exhibit a lower correlation with movements in equity markets.

C more by interest rate changes and exhibit a greater correlation with movements in equity markets.

A is correct. High-yield bonds can be thought of as a hybrid between investment-grade bonds and equity securities. Their spread movements are less influenced by interest rate changes than are investment-grade bonds, and they exhibit greater correlation with movements in equity markets.

B is incorrect because the spread movement on high-yield bonds is less influenced by interest rate changes than are investment-grade bonds, and they exhibit greater, not lower, correlation with movements in equity markets.

C is incorrect because the spread movements on high-yield bonds are less, not more, influenced by interest rate changes than are investment-grade bonds, and they exhibit greater correlation with movements in equity markets.

Fundamentals of Credit Analysis
LOS j
Section 7.1

98 Two years ago, a homeowner took out a $1 million home mortgage from a bank. The current principal on the loan is $750,000, and the homeowner has defaulted on the loan. Following foreclosure proceedings, the bank sells the property for $600,000 and is only entitled to use these funds to satisfy the loan obligation. The homeowner *most likely* had a:

A bullet loan.

B non-recourse loan.

C recourse loan.

B is correct. The bank does not have a claim against the borrower for the shortfall of $150,000 on the mortgage balance outstanding relative to the proceeds received from the property's sale, indicating that the home mortgage is a non-recourse loan.

A is incorrect because a bullet loan is a type of interest-only mortgage loan in which there are no principal payments over the term of the loan. The loan balance outstanding is less than the original mortgage amount, so it is unlikely that this was a bullet loan.

C is incorrect because in the case of a recourse loan the bank would have been entitled to make a claim for the shortfall of $150,000 against the borrower.

Introduction to Asset-Backed Securities
LOS d
Section 4.5

99 Which scenario is *most likely* to result in a competitive return to a CDO equity holder?

A The collateral earns a higher yield than the bond classes.

B The senior bond class experiences early principal repayment.

C The debt funding costs are higher than the CDO return.

A is correct. The benefit of the return on collateral in excess of what is paid out to the bond classes accrues to the equity holders and to the CDO manager.

B is incorrect because when the senior bond class experiences early principal repayment the CDO manager isn't meeting pre-specified tests requiring the prepayment of low cost senior debt, deleveraging the CDO and making it harder for the subordinated tranche to earn a competitive return.

C is incorrect because if debt funding costs are higher than the CDO return, no return will accrue to the subordinated tranche.

Introduction to Asset-Backed Securities
LOS h
Sections 8.1-8.2

100 The value of a 10-year, 6% coupon, $100 par value bond with semiannual payments, assuming an annual discount rate of 7%, is *closest* to:

A $99.07.

B $92.89.

C $107.44.

B is correct. A security with 19 semiannual payments of $3 interest and a 20th payment of $103 (interest plus return of face value) with a semiannual discount rate of 3.5% is computed as:

$$P = \frac{3}{1.035^1} + \frac{3}{1.035^2} + \frac{3}{1.035^3} + \cdots + \frac{3}{1.035^{19}} + \frac{103}{1.035^{20}}$$
$$= 92.89$$

A is incorrect because it is equal to $106/1.07.
C is incorrect because it reverses the coupon rate and the discount rate.
Introduction to Fixed-Income Valuation
LOS a
Section 2.1

101 The option-free bonds of Argus Corporation have a duration of eight years. When interest rates rise by 100 bps, the bond's price declines by 7.9%. When interest rates fall by 100 bps, however, the price rises by 8.2%. The asymmetrical price change is *most likely* caused by the:

A coupon effect.

B maturity effect.

C convexity effect.

C is correct. A fall in interest rates will result in a higher percentage rise in the bond's price compared with the percentage fall in the bond's price when interest rates rise by the same amount.

A is incorrect because the coupon effect relates to the sensitivity of bond price changes to changes in the coupon rate.

B is incorrect because the maturity effect relates to the sensitivity of bond price changes to the time to maturity.

Introduction to Fixed-Income Valuation
LOS b
Section 2.3

102 The current yield for a 4.5% coupon, 10-year bond, with a maturity par value of $100 and currently priced at $85.70 is *closest to:*

A 4.50%.

B 5.93%.

C 5.25%.

C is correct. Current yield is calculated as ($4.5/$85.70) = 5.25%.

A is incorrect because it is the coupon of the bond.

B is incorrect because it is calculated as follows:
100 – 85.70 = 14.30
14.30/10 = 1.43.
4.5 + 1.43 = 5.93
Introduction to Fixed-Income Valuation

LOS f
Section 3.3

103 Assume the yields to maturity on four-year and five-year zero-coupon bonds are 4.67% and 5.35%, respectively, stated on a semiannual bond basis. The "4y1y" implied forward rate is *closest* to:

A 8.092%.

B 8.114%.

C 4.046%.

A is correct. By applying inputs to the formula for a forward rate calculation,

$$\left(1+\frac{0.0467}{2}\right)^{8} \times \left(1+\text{IFR}_{8,2}\right)^{2} = \left(1+\frac{0.0535}{2}\right)^{10}$$

$$\text{IFR}_{8,2} = 0.04046$$

Applying a factor of 2 annualizes for a periodicity of 2, for a forward rate of 8.092%.

B is incorrect because it uses the following formula without considering the semiannual bond basis: $[(1 + 0.0535)^5/(1 + 0.0467)^4] -- 1 = 8.114\%$.

C is incorrect because it does not apply an annualized factor for a period of two.

Introduction to Fixed-Income Valuation
LOS h
Section 4

104 Which of these definitions of duration is most relevant to a bond investor? A bond's duration is its:

A price sensitivity to yield changes.

B first derivative of value with respect to its yield.

C half-life.

A is correct. Bond investors are concerned about interest rate risk, and duration is a good measure of interest rate risk.

B is incorrect because while duration was first measured using the calculus, referring to it in this way is confusing for investors who are unfamiliar with calculus or might confuse it with a derivative security.

C is incorrect because while it's true that duration is the weighted-average maturity or half-life for some bonds, for others the duration has nothing to do with maturity (e.g., an interest only strip security.)

Understanding Fixed-Income Risk and Return
LOS b
Section 3.1

105 The following table provides information about a portfolio of three bonds.

Bond	Maturity	Price	Par Amount	Duration
1	17-year	$109.2461	$16 million	8.56
2	20-year	$100.4732	$4 million	9.19
3	25-year	$84.6427	$8 million	11.48

Based on this information, the duration of the portfolio is *closest* to:

A 9.48.

B 9.35.

C 9.74.

B is correct. The market values of the bonds (Price × Par amount) are $17,479,376, $4,018,928, and $6,771,416, respectively, for a portfolio value of $28,269,720. Therefore, the duration of the portfolio is

$$\left(\frac{17{,}479{,}376}{28{,}269{,}720} \times 8.56\right) + \left(\frac{4{,}018{,}928}{28{,}269{,}720} \times 9.19\right) + \left(\frac{6{,}771{,}416}{28{,}269{,}720} \times 11.48\right) = 9.35$$

A is incorrect because it bases the weights on par values rather than market values.
C is incorrect because it is the simple arithmetic average of the bonds' durations.
Understanding Fixed-Income Risk and Return
LOS f
Section 3.4

106 The option-free bonds issued by ALS Corp. are currently priced at 108.50. Based on a portfolio manager's valuation model, a 1 bp increase in interest rates will result in the bond price falling to 108.40, whereas a 1 bp decrease in interest rates will result in the bond price rising to 108.59. The price value of a basis point (PVBP) for the bonds is *closest* to:

A 0.095.

B 0.088.

C 0.190.

A is correct. The bond's PVBP is computed using

$$\text{PVBP} = \frac{(PV_{-}) - (PV_{+})}{2} = \frac{108.59 - 108.40}{2} = 0.095$$

B is incorrect because the PVBP is calculated using the incorrect formula:

$$\frac{108.59 - 108.40}{2 \times 108.50 \times 0.01} = 0.088$$

C is incorrect because the PVBP is calculated by omitting the 2 in the denominator: 108.59 – 108.40 = 0.190
Understanding Fixed-Income Risk and Return
LOS g
Section 3.5

107 There are two forward contracts, contract 1 and contract 2, on the same underlying. The underlying makes no cash payments, does not yield any nonfinancial benefits, and does not incur any storage costs. Contract 1 expires in one year, and contract 2 expires in two years. It is *most likely* that the price of contract 1:

A is equal to the price of contract 2.

B is less than the price of contract 2.

C exceeds the price of contract 2.

B is correct. The forward price is the spot price compounded at the risk-free rate over the life of the contract. Because contract 2 has the longer life, compounding will lead to a larger value.

A is incorrect. The price of contract 1 will be less than the price of contract 2.

C is incorrect. The price of contract 1 will be less than the price of contract 2.

Basics of Derivative Pricing and Valuation
LOS c
Section 3.1.2

108 For a forward contract with a value of zero, a situation where the spot price is above the forward price is *best* explained by high:

A interest rates.

B storage costs.

C convenience yield.

C is correct. If the convenience yield is high, holding the underlying confers large benefits, thus the spot price can exceed the forward price for a forward contract with a value of zero. Based on the formula

$V_t(T) = S_t - (\gamma - \theta)(1 + r)^t - F_0(T)(1 + r)^{-(T-t)}$ and an initial value $V_t(0)$ of zero, large benefits γ explain why the spot price can exceed the forward price.

A is incorrect. High interest rates make the forward contract more valuable. Thus the forward rate is above the spot rate.

B is incorrect. High storage costs make the forward contract more valuable. Thus the forward rate is above the spot rate.

Basics of Derivative Pricing and Valuation
LOS d
Section 2.2.5

109 Which of the following statements is *least* accurate concerning differences in the pricing of forwards and futures?

A Differences in the pattern of cash flows of forwards and futures can explain pricing differences.

B Pricing differences can arise if futures prices and interest rates are uncorrelated.

C Interest rate volatility can explain pricing differences.

B is correct. If futures prices and interest rates are uncorrelated, the prices of forwards and futures will be identical.

A is incorrect. The statement is true.

C is incorrect. The statement is true.

Basics of Derivative Pricing and Valuation
LOS f
Section 3.2

110 If dividends paid by the underlying increase, the value of a European call option will *most likely*:

A not change.

B increase.

C decrease.

C is correct. A European call option is worth less the more dividends are paid by the underlying.

A is incorrect. A European call option is worth less the more dividends are paid by the underlying.

B is incorrect. A European call option is worth less the more dividends are paid by the underlying.

Basics of Derivative Pricing and Valuation
LOS k
Section 4.1.7

111 According to put–call parity, if a fiduciary call expires in the money, the payoff is *most likely* equal to the:

A difference between the market value of the asset and the face value of the risk-free bond.

B market value of the asset.

C face value of the risk-free bond.

B is correct. A fiduciary call, defined as a long position in a call and in a risk-free bond, generates a payoff that is equal to the market value of the asset if it expires in the money.

A is incorrect. The difference between the market value of the asset and the face value of the risk-free bond is the payoff of the long call if exercised. This ignores the fact that the face value of the bond needs to be added to the payoff.

C is incorrect. The face value of the risk-free bond is the payoff of the fiduciary call if the call expires out of the money,

Basics of Derivative Pricing and Valuation
LOS l
Section 4.1.9

112 When valuing a call option using the binomial model, an increase in the probability that the underlying will go up *most likely* implies that the current price of the call option:

A increases.

B remains unchanged.

C decreases.

B is correct. The probability that the underlying will go up is not part of the binomial model for pricing options. This probability is irrelevant because the options are priced using risk-neutral probabilities. These are derived by constructing a hedged portfolio in the absence of arbitrage opportunities.

A is incorrect. The probability that the underlying will go up is not part of the binomial model for pricing options and hence does not influence the value of the call option.

C is incorrect. The probability that the underlying will go up is not part of the binomial model for pricing options and hence does not influence the value of the call option.

Basics of Derivative Pricing and Valuation
LOS n
Section 4.2

113 Which of the following is *least likely* to be an example of a derivative?

A An exchange-traded fund

B A contract to sell Alphabet Inc.'s shares at a fixed price

C A contract to buy Australian dollars at a predetermined exchange rate

A is correct. Although an exchange-traded fund derives its value from the underlying assets it holds, it does not transform the performance of those assets and so is not a derivative.

B is incorrect. A contract to sell Alphabet Inc.'s shares transforms the performance of the underlying shares of Alphabet Inc and is an example of an option derivative.

C is incorrect. A contract to buy Australian dollars transforms the performance of the underlying currency and is an example of a currency derivative.

Derivative Markets and Instruments
LOS a
Section 2

114 An alternative investments fund that uses leverage and takes long and short positions in securities is *most likely* a:

A leveraged buyout fund.

B hedge fund.

C venture capital fund.

B is correct. Hedge funds invest in securities and may take long and short positions. They may also use leverage.

A is incorrect. Leveraged buyout funds make equity investments in established companies

C is incorrect. Venture capital funds provide capital to start-up firms with high growth potential.

Introduction to Alternative Investments

LOS b
Section 2.1

115 If the level of broad inflation indexes is largely determined by commodity prices, the average real yield on direct commodity investments is *most likely*:

A less than zero.

B equal to zero.

C greater than zero.

B is correct. As the price increases of commodities are mirrored in higher price indexes, the nominal return is equal to inflation and thus the real return is zero.

A is incorrect. A negative real return implies inflation greater than nominal return. This is not the case if commodity price increases determine inflation.

C is incorrect. A positive real return implies inflation less than nominal return. This is not the case if commodity price increases determine inflation.

Introduction to Alternative Investments
LOS c
Section 6.3

116 At the first of the year, an investor decides to invest $1.5 million in a hedge fund with an incentive fee of 15% and a hard hurdle rate of 4%. At the end of the year, the fund has a return of 23.3%. The incentive fee payment that the general partner of the fund earned based on this client's investment at the end of the year is closest to?

A $43,425

B $52,425

C $38,445

A is correct. The investor's return met the 4% hurdle rate, so the incentive fee charged would be ($1,849,500 – $1,500,000 – $60,000) × 15% = $43,425.

B is incorrect because the fee was calculated using an increased asset base as follows: 23.3% × $1.5 million = $349,500 and then taking a 15% incentive fee on this return: $349,500 × 15% = $52,425.

C is incorrect because the fee was calculated using an increased investor asset base as follows: 23.3% × $1.5 million = $349,500 and then taking a 15% incentive fee on this return less a 4% hurdle rate: $349,500 × 15% – 4% = $38,445.

Introduction to Alternative Investments
LOS e
Section 3.3

117 A hedge fund begins the year with $120 million and earns a 25% return for the year. The fund charges a 1.5% management fee on end-of-year fund value and a 15% incentive fee on the return, net of the management fees, that is in excess of a 6% fixed hurdle rate. The fund's investors' return for the year, net of fees, is *closest* to:

A 20.56%.

B 21.25%.

C 19.66%.

A is correct. The $120 million grows by 25% to $150 million [= $120 million × (1 + 0.25)]. The management fee is $2.25 million (= $150 million × 0.015), leaving $147.75 million, net of the management fee, or an increase of $27.75 million over the beginning value of $120 million. The 6% hurdle rate requires an increase of $7.2 million (= $120 million × 0.06), so the fund has earned $20.55 million (= $27.75 million – $7.2 million) over the hurdle rate, net of the management fee.

The incentive fee is 15% of this, or $3.0825 million (= $20.55 million × 0.015), leaving an increase in fund assets, net of management and incentive fees, of $24.6675 million (= $27.75 million – $3.0825 million). The investors' return, net of fees, is $24.6675/$120 million = 20.56%.

C is incorrect because it fails to adjust for the hurdle rate when calculating the incentive fee or 0.15 × $27.75 million = $4.1625 million and $27.75 million – $4.1625 million = $23.5875 million. $23.5875 million/$120 million = 19.66%.

B is incorrect because it ignores that management fee. The fund grows to $150 million.
Incentive fee is ($150 million – $120 million) × 0.15 = $4.5 million
$150 million – $120 million – $4.5 million = $25.5 million
$25.5 million/$120 million = 0.2125
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Section 3.3.1

118 A hedge fund with an initial value of $100 million has a management fee of 2% and an incentive fee of 20%. Management and incentive fees are calculated independently using end-of-period valuation. The value must reach the previous high-water mark before incentive fees are paid. The table below provides end-of-period fund values over the next three years.

	Fund Value ($ millions)	
Year	**Before Fees**	**After Fees**
1	120	113.6
2	110	107.8
3	125	?

The total amount of fees earned by the hedge fund in Year 3 is *closest* to:

A $4.8 million.

B $5.5 million.

C $5.9 million.

A is correct. The incentive fee is based on the performance relative to the previous high-water mark after fees.
Management fee: 2% of $125 million = $2.5 million
Incentive fee: 20% of ($125 million – $113.6 million) = $2.28 million
In total: $2.5 million + $2.28 million = $4.78 million

B is incorrect because the incentive fee is incorrectly based on the fund value before fees in the second year.
Management fee: 2% of $125 million = $2.5 million

Incentive fee: 20% of ($125 million – $110 million) = $3 million
In total: $2.5 million + $3 million = $5.5 million
C is incorrect because the incentive fee is incorrectly based on the fund value after fees in the second year.
Management fee: 2% of $125 million = $2.5 million
Incentive fee: 20% of ($125 million – $107.8 million) = $3.44 million
In total: $2.5 million + $3.44 million = $5.94 million
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Section 3.3

119 An investor who has positions in multiple long–short equity hedge funds and is concerned about whether these positions are sufficiently diversified will *mostly likely* be concerned about the lack of:

A transparency in reported positions.

B frequent independent valuations.

C liquidity in the underlying assets.

A is correct. Long–short hedge funds invest in liquid, publicly traded equity (taking long and short positions); therefore, the underlying positions can be reversed easily and there is no need for independent valuations because current market prices are available. The investor will have difficulty in determining if the different funds are holding diverse or concentrated positions (both within each fund and between funds) because hedge funds generally do not reveal their holdings.
B is incorrect because these funds hold publicly traded securities with fresh market prices.
C is incorrect because these funds hold publicly traded securities that trade in liquid markets.
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Section 9.1.3

120 Which of the following is *least likely* to reduce the likelihood of being defrauded by a dishonest money manager?

A Third-party custody of assets under management

B Strong and consistent reported investment performance

C Independent verification of investment results

B is correct. To prevent fraud, involvement of third parties in the reporting and asset management process is helpful. A strong and consistent reported investment performance that lacks outside verification may actually be a warning sign.
A is incorrect. Third-party custody of assets under management helps to reduce the possibility of fraud.
C is incorrect. Independent verification of investment results helps to reduce the possibility of fraud.
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Section 8.3