1. **Question:** Buying shares of security *i* improves the Sharpe ratio of a portfolio if its expected return does not exceed the required return. **Answer:** F **Feedback:** The sentence is FALSE. To improve the Sharpe ratio, an asset’s expected return must exceed its required return (the risk premium); otherwise, adding it lowers the portfolio’s risk‑adjusted return.
2. **Question:** The expected variance of a portfolio is the weighted average of the expected variances of the investments within it, using the portfolio weights. **Answer:** F **Feedback:** The sentence is FALSE. Portfolio variance also includes covariance terms between assets; it is not simply the weighted average of individual variances.
3. **Question:** Diversification eliminates independent risks. The volatility of a large portfolio results from the common risk between the stocks in the portfolio. **Answer:** T **Feedback:** The sentence is TRUE. Idiosyncratic (independent) risks offset each other in a large portfolio, so only systematic risk remains in the portfolio’s volatility.
4. **Question:** Short selling extends the set of possible portfolios. **Answer:** T **Feedback:** The sentence is TRUE. Allowing short positions (negative weights) expands the range of achievable risk–return combinations.
5. **Question:** Investors mainly worry about those risks that can be eliminated through diversification. **Answer:** F **Feedback:** The sentence is FALSE. Diversifiable risk can be eliminated without compensation; investors focus on systematic risk, which cannot be diversified away.
6. **Question:** Efficient portfolios offer investors the highest possible expected return for a given level of risk. **Answer:** T **Feedback:** The sentence is TRUE. By definition, portfolios on the efficient frontier maximize expected return for a particular volatility.
7. **Question:** To find the risk of a portfolio, we need to know the degree to which stock returns move together. Covariance and correlation measure the co‑movement of returns. **Answer:** T **Feedback:** The sentence is TRUE. Covariance and correlation quantify how asset returns co‑move and are essential inputs to portfolio risk calculations.
8. **Question:** The goal of an investor who is seeking to earn the highest possible expected return for any level of volatility is to find the portfolio that generates the steepest possible line when combined with the risk‑free investment. **Answer:** T **Feedback:** The sentence is TRUE. The steepest line from the risk‑free rate represents the maximum Sharpe ratio; investors seek this optimal risky portfolio.
9. **Question:** Under the CAPM assumptions, the capital market line (CML), which is the set of portfolios obtained by combining the risk‑free security and the market portfolio, is the set of portfolios with the highest possible expected return for any level of volatility. **Answer:** T **Feedback:** The sentence is TRUE. The CML dominates all other portfolios in risk–return space under the CAPM assumptions.
10. **Question:** The variance of a portfolio depends on the covariance of the stocks within it. **Answer:** T **Feedback:** The sentence is TRUE. The portfolio variance formula includes a 2 × w₁ w₂ covariance term, so co‑movement affects total risk.
11. **Question:** Portfolios that offer the highest expected return for a given variance (or standard deviation) are known as efficient portfolios. **Answer:** T **Feedback:** The sentence is TRUE. This is the definition of efficiency in Modern Portfolio Theory.
12. **Question:** A minimum‑variance portfolio is the portfolio with the lowest possible risk for a given set of assets. **Answer:** T **Feedback:** The sentence is TRUE. The minimum‑variance portfolio minimizes volatility across all feasible weight combinations.
13. **Question:** The market portfolio is a tangency portfolio according to the CAPM. **Answer:** T **Feedback:** The sentence is TRUE. In the CAPM, the market portfolio touches the efficient frontier and has the highest Sharpe ratio.
14. **Question:** Beta measures the sensitivity of a stock's returns to the overall market movements. **Answer:** T **Feedback:** The sentence is TRUE. Beta captures how a stock’s returns respond to changes in the market.
15. **Question:** The efficient frontier represents the set of portfolios that offer the highest expected return for a given level of risk. **Answer:** T **Feedback:** The sentence is TRUE. It traces the best possible trade‑off between risk and return.
16. **Question:** The Sharpe ratio is a measure of risk‑adjusted return, calculated by dividing the excess return of an investment by its standard deviation. **Answer:** T **Feedback:** The sentence is TRUE. Sharpe ratio = (expected return – risk‑free rate) / standard deviation.
17. **Question:** The Capital Market Line (CML) represents the risk‑return tradeoff for efficient portfolios that combine the risk‑free asset with the market portfolio. **Answer:** T **Feedback:** The sentence is TRUE. The CML shows all efficient combinations of the market portfolio and the risk‑free asset.
18. **Question:** A well‑diversified portfolio always consists of assets with low or negative correlations to each other to reduce overall portfolio risk. **Answer:** F **Feedback:** The sentence is FALSE. While low correlations help, diversification can still reduce risk even with some positive correlations; the key is the overall covariance structure.
19. **Question:** The Efficient Frontier represents portfolios that offer the best possible trade-off between expected return and risk, excluding any combinations with the risk-free asset. **Answer:** T **Feedback:** The sentence is TRUE. The Efficient Frontier shows all optimal portfolios formed by risky assets only. Combinations with the risk-free asset are represented by the Capital Market Line (CML), which starts at the risk-free rate and is tangent to the Efficient Frontier.
20. **Question:** An asset's standard deviation represents its systematic risk in the context of the Capital Asset Pricing Model (CAPM). **Answer:** F **Feedback:** The sentence is FALSE. Standard deviation measures total risk (systematic plus idiosyncratic); systematic risk is captured by beta.
21. **Question:** An efficient portfolio has no risk at all. **Answer:** F **Feedback:** The sentence is FALSE. Efficient portfolios still have risk; they simply maximize return relative to that risk.
22. **Question:** The presence of a risk‑free asset enables the investor to borrow or lend at the risk‑free rate and form portfolios having greater Sharpe ratios. **Answer:** T **Feedback:** The sentence is TRUE. Borrowing or lending at the risk‑free rate and combining with the optimal risky portfolio allows movement along the CML to achieve higher Sharpe ratios.
23. **Question:** The security market line (SML) is the graph of expected rate of return on investment vs. the variance of returns. **Answer:** F **Feedback:** The sentence is FALSE. The SML plots expected return versus beta; the CML relates expected return to standard deviation.
24. **Question:** If a stock is overpriced, it would plot above the security market line. **Answer:** F **Feedback:** The sentence is FALSE. A stock above the SML offers more return than justified by its risk and is underpriced; an overpriced stock falls below the SML.
25. **Question:** A stock's alpha is the difference between the expected return and the required return according to the CAPM. **Answer:** T **Feedback:** The sentence is TRUE. Alpha measures performance relative to the return predicted by beta.
26. **Question:** Adding assets with low or negative correlations to a portfolio generally reduces overall risk. **Answer:** T **Feedback:** The sentence is TRUE. Lower correlation lowers the covariance terms in portfolio variance, reducing overall risk.
27. **Question:** In equilibrium, it is possible to earn a return that is above the efficient frontier without the existence of a risk‑free asset or some other asset that is uncorrelated with your portfolio assets. **Answer:** F **Feedback:** The sentence is FALSE. Without a risk‑free or uncorrelated asset, all feasible portfolios lie on or below the efficient frontier; one cannot surpass it.
28. **Question:** The Sharpe ratio measures the excess return per unit of risk. **Answer:** T **Feedback:** The sentence is TRUE. It expresses how much excess return is earned per unit of total volatility.
29. **Question:** A stock with a beta of 0 is expected to have no correlation with market movements.  
    **Answer:** T **Feedback:** The sentence is TRUE. Beta zero implies the stock’s returns are uncorrelated with the market.
30. **Question:** The risk‑free asset has a beta of 1. **Answer:** F **Feedback:** The sentence is FALSE. A risk‑free asset has no covariance with the market, so its beta is zero.
31. **Question:** A portfolio on the efficient frontier can always be improved by adding more assets. **Answer:** F **Feedback:** The sentence is FALSE. Portfolios on the efficient frontier already offer the best return for their risk; additional assets cannot improve that trade‑off.
32. **Question:** If two assets have perfect positive correlation, combining them in a portfolio does not reduce risk. **Answer:** T **Feedback:** The sentence is TRUE. With correlation = +1, the assets move together, and diversification provides no risk reduction.
33. **Question:** A stock with a beta greater than 1 is considered less risky than the market. **Answer:** F **Feedback:** The sentence is FALSE. Beta > 1 means the stock amplifies market movements and is more volatile than the market.
34. **Question:** An equally weighted portfolio assigns the same weight to all assets, regardless of their risk or expected return. **Answer:** T **Feedback:** The sentence is TRUE. In an equally weighted portfolio, each asset receives an identical percentage allocation.
35. **Question:** The tangency portfolio on the efficient frontier consists of only risk‑free assets. **Answer:** F **Feedback:** The sentence is FALSE. The tangency (or market) portfolio contains only risky assets and achieves the highest Sharpe ratio.
36. **Question:** The risk‑return tradeoff implies that investors must take on additional risk to achieve higher expected returns. **Answer:** T **Feedback:** The sentence is TRUE. Generally, higher expected returns are associated with greater uncertainty.
37. **Question:** The global minimum variance portfolio has the lowest possible volatility among all feasible portfolios. **Answer:** T **Feedback:** The sentence is TRUE. It is the point of minimum variance on the efficient frontier.
38. **Question:** The Sharpe ratio helps investors compare the risk‑adjusted performance of different portfolios. **Answer:** T **Feedback:** The sentence is TRUE. It standardizes excess return by risk, allowing comparison across portfolios.
39. **Question:** A portfolio with high volatility is always considered inefficient. **Answer:** F **Feedback:** The sentence is FALSE. A high‑volatility portfolio may still be efficient if its expected return is high enough.
40. **Question:** Portfolio diversification benefits decrease as the correlations between assets increase. **Answer:** T **Feedback:** The sentence is TRUE. Higher correlations mean assets move more together, reducing diversification benefits.
41. **Question:** A well‑diversified portfolio eliminates both systematic and unsystematic risk. **Answer:** F **Feedback:** The sentence is FALSE. Diversification eliminates unsystematic (idiosyncratic) risk but cannot remove systematic risk.
42. **Question:** Investors with different risk preferences will choose different points along the Capital Market Line. **Answer:** T **Feedback:** The sentence is TRUE. More risk‑averse investors select combinations with more of the risk‑free asset; less risk‑averse may leverage the market portfolio.
43. **Question:** The covariance between two stocks determines their contribution to overall portfolio risk. **Answer:** T **Feedback:** The sentence is TRUE. The covariance affects the cross‑term in the variance formula, influencing total risk.
44. **Question:** A portfolio with a beta of 1 has the same systematic risk as the market portfolio. **Answer:** T **Feedback:** The sentence is TRUE. Beta = 1 means the portfolio’s returns move in line with the market’s systematic risk.
45. **Question:** A portfolio’s expected return is the weighted average of the expected returns of the individual assets in the portfolio. **Answer:** T **Feedback:** The sentence is TRUE. Expected returns combine linearly according to the weights.
46. **Question:** An investor who only holds a single stock is still well diversified as long as that stock has a high expected return. **Answer:** F **Feedback:** The sentence is FALSE. Holding one stock exposes the investor to idiosyncratic risk; high expected return does not substitute for diversification.
47. **Question:** According to Modern Portfolio Theory, an investor should hold a combination of the risk‑free asset and the market portfolio to achieve an optimal risk‑return tradeoff. **Answer:** T **Feedback:** The sentence is TRUE. Combining the market portfolio with the risk‑free asset along the CML yields the best attainable trade‑off.
48. **Question:** Beta is calculated as the covariance between the asset’s return and the market return divided by the variance of the market return. **Answer:** T **Feedback:** The sentence is TRUE. By definition, β = Cov(Rᵢ, R\_m) / Var(R\_m).
49. **Question:** According to the CAPM, the only compensation investors receive is for unsystematic risk. **Answer:** F **Feedback:** The sentence is FALSE. Under CAPM, investors are compensated only for systematic risk; unsystematic risk is not rewarded.
50. **Question:** The intercept of the Security Market Line is equal to the risk‑free rate of return. **Answer:** T **Feedback:** The sentence is TRUE. At β = 0, the SML gives E[R] = Rf, so the intercept is the risk‑free rate.
51. **Question:** A beta of 1.5 implies that the asset is less volatile than the market portfolio. **Answer:** F **Feedback:** The sentence is FALSE. Beta greater than one means the asset is more volatile (more sensitive to market movements) than the market.
52. **Question:** Negative beta values indicate that an asset tends to move opposite to market movements. **Answer:** T **Feedback:** The sentence is TRUE. A negative beta signifies that the asset has an inverse relationship with the market.
53. **Question:** The Capital Market Line plots expected return against beta for all securities. **Answer:** F **Feedback:** The sentence is FALSE. The CML relates expected return to standard deviation for efficient portfolios; the SML relates expected return to beta.
54. **Question:** Combining a risk‑free asset with a risky portfolio can create portfolios with higher Sharpe ratios than the risky portfolio alone. **Answer:** T **Feedback:** The sentence is TRUE. Mixing with the risk‑free asset adjusts risk and can yield a higher Sharpe ratio along the CML.
55. **Question:** Beta measures both systematic and idiosyncratic risk of a security. **Answer:** F **Feedback:** The sentence is FALSE. Beta captures only systematic risk.
56. **Question:** Diversifying across many stocks can reduce systematic risk to zero. **Answer:** F **Feedback:** The sentence is FALSE. Systematic risk cannot be diversified away; only idiosyncratic risk can be eliminated.
57. **Question:** A portfolio’s beta is the weighted average of the betas of the individual assets. **Answer:** T **Feedback:** The sentence is TRUE. Portfolio beta = Σ wᵢ × βᵢ.
58. **Question:** A stock with a beta of 0 is expected to have an expected return equal to the risk‑free rate. **Answer:** T **Feedback:** The sentence is TRUE. With β = 0, CAPM gives E[R] = Rf.
59. **Question:** All investors will always choose the same combination of risky assets if they have identical expectations and there is a risk‑free asset. **Answer:** T **Feedback:** The sentence is TRUE. With homogeneous expectations and no transaction costs, everyone holds the market portfolio in equilibrium.
60. **Question:** The slope of the Capital Market Line equals the Sharpe ratio of the market portfolio. **Answer:** T **Feedback:** The sentence is TRUE. CML slope = (E[R\_m] – Rf)/σ\_m, which is the market’s Sharpe ratio.
61. **Question:** Systematic risk can be diversified away by holding many stocks. **Answer:** F **Feedback:** The sentence is FALSE. Systematic (market) risk affects all assets; diversification cannot eliminate it.
62. **Question:** A minimum‑variance portfolio has the highest possible Sharpe ratio. **Answer:** F **Feedback:** The sentence is FALSE. The minimum‑variance portfolio minimizes volatility but may not have the highest ratio of excess return to risk.
63. **Question:** The beta of the market portfolio is exactly 1. **Answer:** T **Feedback:** The sentence is TRUE. By convention, the market portfolio has β = 1.
64. **Question:** If an asset lies below the SML, it offers a higher expected return for its risk. **Answer:** F **Feedback:** The sentence is FALSE. An asset below the SML provides too low a return for its level of systematic risk and is overpriced.
65. **Question:** Correlation coefficients can only take values between −1 and +1. **Answer:** T **Feedback:** The sentence is TRUE. Correlation is bounded between −1 and +1.
66. **Question:** The risk of a portfolio is always the average of the risks of its individual assets. **Answer:** F **Feedback:** The sentence is FALSE. Portfolio risk depends on correlations; it can be lower than the weighted average of individual volatilities.
67. **Question:** A risk‑free asset has a beta of zero. **Answer:** T **Feedback:** The sentence is TRUE. A risk‑free asset has no covariance with the market, so β = 0.
68. **Question:** The CML represents portfolios formed by combining the risk‑free asset and the market portfolio. **Answer:** T **Feedback:** The sentence is TRUE. All points on the CML are linear combinations of the risk‑free asset and the market portfolio.
69. **Question:** In the CAPM, the expected return of any asset is independent of its covariance with the market. **Answer:** F **Feedback:** The sentence is FALSE. The expected return depends directly on the asset’s beta (covariance with the market).
70. **Question:** Stocks with higher betas should yield lower expected returns to be priced fairly. **Answer:** F **Feedback:** The sentence is FALSE. Higher betas imply greater systematic risk and therefore require higher expected returns.
71. **Question:** Portfolios that lie below the efficient frontier are considered inefficient. **Answer:** T **Feedback:** The sentence is TRUE. They offer lower return for the same risk or higher risk for the same return.
72. **Question:** If two assets have a correlation coefficient of +1, diversification between them reduces risk. **Answer:** F **Feedback:** The sentence is FALSE. Perfect positive correlation means no risk reduction from diversification.
73. **Question:** The Sharpe ratio increases when the risk‑free rate decreases if portfolio return and volatility remain unchanged. **Answer:** T **Feedback:** The sentence is TRUE. A lower risk‑free rate raises the excess return in the numerator, increasing the ratio.
74. **Question:** A portfolio on the efficient frontier cannot be dominated by another portfolio offering a higher expected return with the same or lower risk. **Answer:** T **Feedback:** The sentence is TRUE. By definition, no other portfolio offers a better risk–return combination.
75. **Question:** The CAPM assumes that investors can borrow and lend unlimited amounts at the risk‑free rate. **Answer:** T **Feedback:** The sentence is TRUE. Unlimited borrowing and lending at Rf is one of the CAPM’s simplifying assumptions.
76. **Question:** Idiosyncratic risk is not relevant when evaluating an asset using CAPM. **Answer:** T **Feedback:** The sentence is TRUE. CAPM prices only systematic risk; idiosyncratic risk is assumed diversifiable.
77. **Question:** The expected return of a well‑diversified portfolio depends primarily on the portfolio’s beta. **Answer:** T **Feedback:** The sentence is TRUE. In a diversified portfolio, unsystematic risk is negligible, so expected return is determined by beta.
78. **Question:** A beta greater than zero but less than one indicates that the asset is more volatile than the market. **Answer:** F **Feedback:** The sentence is FALSE. Beta between 0 and 1 means the asset is less sensitive (less volatile) than the market.
79. **Question:** Under CAPM, the reward‑to‑risk ratio of all individual assets is the same and equal to the market risk premium. **Answer:** T **Feedback:** The sentence is TRUE. (E[R] – Rf)/β is constant and equals E[R\_m] – Rf for all assets in equilibrium.
80. **Question:** If two assets have zero correlation, the covariance between them is zero. **Answer:** T **Feedback:** The sentence is TRUE. Covariance = correlation × σ₁ × σ₂; correlation zero implies covariance zero.
81. **Question:** Adding a risk‑free asset to the portfolio cannot lower the overall portfolio variance. **Answer:** F **Feedback:** The sentence is FALSE. Including a risk‑free asset can reduce portfolio variance in proportion to its weight.
82. **Question:** The Treynor ratio is useful for comparing portfolios that are already well diversified. **Answer:** T **Feedback:** The sentence is TRUE. Because it uses beta in the denominator, the Treynor ratio focuses on systematic risk and is appropriate for diversified portfolios.
83. **Question:** It is impossible for a portfolio to have a beta of zero. **Answer:** F **Feedback:** The sentence is FALSE. A portfolio can be constructed with net beta zero by combining assets with positive and negative betas.
84. **Question:** Two portfolios with the same beta must have the same expected return under CAPM. **Answer:** T **Feedback:** The sentence is TRUE. In CAPM, E[R] = Rf + β(E[R\_m] – Rf); equal betas imply equal expected returns.
85. **Question:** The variance of a portfolio is equal to the sum of the variances of each asset when correlations are zero. **Answer:** F **Feedback:** The sentence is FALSE. When correlation is zero, portfolio variance equals the sum of squared weights times the variances (Σ wᵢ²σᵢ²), not simply Σ σᵢ².
86. **Question:** CAPM implies that all securities plot exactly on the Security Market Line in equilibrium.  
    **Answer:** T **Feedback:** The sentence is TRUE. In equilibrium, securities have zero alpha and lie on the SML.
87. **Question:** If an asset has a negative beta, it is expected to have a return below the risk‑free rate. **Answer:** F **Feedback:** The sentence is FALSE. A negative beta asset may still have an expected return above or below Rf depending on the market risk premium and its magnitude.
88. **Question:** The optimal risky portfolio is the one with the highest Sharpe ratio. **Answer:** T **Feedback:** The sentence is TRUE. The tangency (market) portfolio maximizes excess return per unit of total risk.
89. **Question:** Investing more than 100 % in the market portfolio (leveraging) moves the portfolio up the CML. **Answer:** T **Feedback:** The sentence is TRUE. Borrowing at the risk‑free rate and investing more in the market portfolio increases both return and risk along the CML.
90. **Question:** The covariance between two assets is always non‑negative. **Answer:** F **Feedback:** The sentence is FALSE. Covariance can be positive, zero or negative depending on how the assets move relative to each other.
91. **Question:** The CML can be used to evaluate the performance of individual securities. **Answer:** F **Feedback:** The sentence is FALSE. The CML applies to efficient portfolios; the Security Market Line is used for individual securities.
92. **Question:** Under CAPM, investors are compensated only for bearing unsystematic risk. **Answer:** F **Feedback:** The sentence is FALSE. Compensation in CAPM is for systematic risk; unsystematic risk is not rewarded.
93. **Question**: The Security Market Line (SML) and the Capital Market Line (CML) are identical graphs in the CAPM model. **Answer**: F **Feedback**: The sentence is FALSE. The SML plots expected return against beta (systematic risk), while the CML plots expected return against total risk (standard deviation).
94. **Question**: The global minimum variance portfolio consists only of the risk-free asset. **Answer**: F **Feedback**: The sentence is FALSE. The minimum variance portfolio is the combination of risky assets with the lowest possible volatility, not necessarily involving the risk-free asset.
95. **Question**: The efficient frontier will not change if the correlation between assets changes. **Answer**: F **Feedback**: The sentence is FALSE. The shape and position of the efficient frontier depend on the correlations between asset returns; changes in correlation affect diversification benefits.
96. **Question**: If two assets have perfect negative correlation, combining them in a portfolio can theoretically eliminate all risk. **Answer**: T **Feedback**: The sentence is TRUE. Perfect negative correlation allows for a combination where the gains in one asset offset the losses in another, potentially eliminating portfolio variance.
97. **Question**: An asset with a beta of zero is assumed to have an expected return equal to the risk-free rate. **Answer**: T **Feedback**: The sentence is TRUE. According to CAPM, an asset with beta zero is not sensitive to market movements and thus earns the risk-free rate.
98. **Question**: Portfolio variance is always reduced when adding a new asset, regardless of its correlation with existing assets. **Answer**: F **Feedback**: The sentence is FALSE. Adding an asset with a high positive correlation to existing assets may not reduce and could even increase portfolio variance.
99. **Question**: The higher the standard deviation of a stock, the higher its beta. **Answer**: F **Feedback**: The sentence is FALSE. Beta measures systematic risk relative to the market, not total risk; a stock can have high volatility (standard deviation) but a low beta if it’s uncorrelated with the market.
100. **Question**: Investors who are risk-averse will prefer portfolios below the Capital Market Line (CML). **Answer**: F **Feedback**: The sentence is FALSE. Rational investors will only choose portfolios on the CML, as portfolios below it are inefficient and offer lower returns for the same risk.