SS 02 Quantitative Methods: Basic Concepts

Question #1 of 119

Question ID: 413077

If the outcome of event A is not affected by event B, then events A and B are said to be:

A) statistically independent.

B) mutually exclusive.

C) conditionally dependent.

Question #2 of 119

Question ID: 413026

For a stock, which of the following is *least likely* a random variable? Its:

A) most recent closing price.

B) current ratio.

C) stock symbol.

Question #3 of 119

Question ID: 413068

If the probability of both a new Wal-Mart and a new Wendy's being built next month is 68% and the probability of a new Wal-Mart being built is 85%, what is the probability of a new Wendy's being built if a new Wal-Mart is built?

A) 0.60.

B) 0.80.

C) 0.70.

Question #4 of 119

Question ID: 413022

In any given year, the chance of a good year is 40%, an average year is 35%, and the chance of a bad year is 25%. What is the probability of having two good years in a row?

A) 16.00%.

B) 8.75%.

C) 10.00%.

Question #5 of 119

Question ID: 413057

A very large company has twice as many male employees relative to female employees. If a random sample of four employees is selected, what is the probability that all four employees selected are female?

A) 0.0625.

B) 0.0123.

C) 0.3333.

Question #6 of 119

Question ID: 413100

The covariance:

A) can be positive or negative.

B) must be positive.

C) must be between -1 and +1.

Question #7 of 119

Question ID: 413096

Which of the following statements is *least* accurate regarding covariance?

A) The covariance of a variable with itself is one.

B) Covariance can only apply to two variables at a time.

C) Covariance can exceed one.

Question #8 of 119

Question ID: 413080

Jay Hamilton, CFA, is analyzing Madison, Inc., a distressed firm. Hamilton believes the firm's survival over the next year depends on the state of the economy. Hamilton assigns probabilities to four economic growth scenarios and estimates the probability of bankruptcy for Madison under each:

Economic growth scenario	Probability of scenario	Probability of bankruptcy
Recession (< 0%)	20%	60%
Slow growth (0% to 2%)	30%	40%
Normal growth (2% to 4%)	40%	20%

Rapid growth (> 4%)	10%	10%

Based on Hamilton's estimates, the probability that Madison, Inc. does not go bankrupt in the next year is *closest* to:

A) 18%.

B) 33%.

C) 67%.

Question #9 of 119

Question ID: 413076

The probability of rolling a 3 on the fourth roll of a fair 6-sided die:

A) is equal to the probability of rolling a 3 on the first roll.

B) is 1/6 to the fourth power.

C) depends on the results of the three previous rolls.

Question #10 of 119

Question ID: 413028

The probabilities of earning a specified return from a portfolio are shown below:

Probability	*Return*
0.20	10%
0.20	20%
0.20	22%
0.20	15%
0.20	25%

What are the odds of earning at least 20%?

A) Two to three.

B) Three to five.

C) Three to two.

Question #11 of 119

Question ID: 434196

A parking lot has 100 red and blue cars in it.

- 40% of the cars are red.
- 70% of the red cars have radios.
- 80% of the blue cars have radios.

What is the probability of selecting a car at random and having it be red and have a radio?

A) 28%.

B) 25%.

C) 48%.

Question #12 of 119

Question ID: 413099

With respect to the units each is measured in, which of the following is the *most easily* directly applicable measure of dispersion? The:

A) standard deviation.

B) variance.

C) covariance.

Question #13 of 119

Question ID: 413095

The returns on assets C and D are strongly correlated with a correlation coefficient of 0.80. The variance of returns on C is 0.0009, and the variance of returns on D is 0.0036. What is the covariance of returns on C and D?

A) 0.00144.

B) 0.03020.

C) 0.40110.

Question #14 of 119

Question ID: 413050

Which of the following is a joint probability? The probability that a:

A) company merges with another firm next year.

B) stock increases in value after an increase in interest rates has occurred.

C) stock pays a dividend and splits next year.

Question #15 of 119

Question ID: 413042

For a given corporation, which of the following is an example of a conditional probability? The probability the corporation's:

A) inventory improves.

B) dividend increases given its earnings increase.

C) earnings increase and dividend increases.

Question #16 of 119

Question ID: 413114

Tully Advisers, Inc., has determined four possible economic scenarios and has projected the portfolio returns for two portfolios for their client under each scenario. Tully's economist has estimated the probability of each scenario, as shown in the table below. Given this information, what is the standard deviation of expected returns on Portfolio B?

Scenario	*Probability*	*Return on Portfolio A*	*Return on Portfolio B*
A	15%	18%	19%
B	20%	17%	18%
C	25%	11%	10%
D	40%	7%	9%

A) 4.34%.

B) 12.55%.

C) 9.51%.

Question #17 of 119

Question ID: 413039

If the probability of an event is 0.10, what are the odds for the event occurring?

A) One to nine.

B) One to ten.

C) Nine to one.

Question #18 of 119

Question ID: 413105

The following information is available concerning expected return and standard deviation of Pluto and Neptune Corporations:

	Expected Return	*Standard Deviation*
Pluto Corporation	11%	0.22
Neptune Corporation	9%	0.13

If the correlation between Pluto and Neptune is 0.25, determine the expected return and standard deviation of a portfolio that consists of 65% Pluto Corporation stock and 35% Neptune Corporation stock.

A) 10.3% expected return and 2.58% standard deviation.

B) 10.0% expected return and 16.05% standard deviation.

C) 10.3% expected return and 16.05% standard deviation.

Question #19 of 119

Question ID: 413062

Given the following table about employees of a company based on whether they are smokers or nonsmokers and whether or not they suffer from any allergies, what is the probability of suffering from allergies or being a smoker?

	Suffer from Allergies	*Don't Suffer from Allergies*	*Total*
Smoker	35	25	60
Nonsmoker	55	185	240
Total	90	210	300

A) 0.38.

B) 0.88.

C) 0.12.

Question #20 of 119

Question ID: 413116

Use the following probability distribution to calculate the expected return for the portfolio.

State of the Economy	*Probability*	*Return on Portfolio*
Boom	0.30	15%
Bust	0.70	3%

A) 9.0%.

B) 6.6%.

C) 8.1%.

Question #21 of 119

Question ID: 413052

An analyst has a list of 20 bonds of which 14 are callable, and five have warrants attached to them. Two of the callable bonds have warrants attached to them. If a single bond is chosen at random, what is the probability of choosing a callable bond or a bond with a warrant?

A) 0.70.

B) 0.85.

C) 0.55.

Question #22 of 119

Question ID: 413125

John purchased 60% of the stocks in a portfolio, while Andrew purchased the other 40%. Half of John's stock-picks are considered good, while a fourth of Andrew's are considered to be good. If a randomly chosen stock is a good one, what is the probability John selected it?

A) 0.75.

B) 0.30.

C) 0.40.

Question #23 of 119

Question ID: 413074

A firm holds two $50 million bonds with call dates this week.

- The probability that Bond A will be called is 0.80.
- The probability that Bond B will be called is 0.30.

The probability that at least one of the bonds will be called is *closest to*:

A) 0.24.

B) 0.50.

C) 0.86.

Question #24 of 119

Question ID: 434200

Tina O'Fahey, CFA, believes a stock's price in the next quarter depends on two factors: the direction of the overall market and whether the company's next earnings report is good or poor. The possible outcomes and some probabilities are illustrated in the tree diagram shown below:

Based on this tree diagram, the expected value of the stock if the market decreases is *closest* to:

A) $62.50.

B) $26.00.

C) $57.00.

Question #25 of 119

Question ID: 710139

An unconditional probability is *most accurately* described as the probability of an event independent of:

A) the outcomes of other events.

B) an observer's subjective judgment.

C) its own past outcomes.

Question #26 of 119

Question ID: 413046

The unconditional probability of an event, given conditional probabilities, is determined by using the:

A) multiplication rule of probability.

B) addition rule of probability.

C) total probability rule.

Question #27 of 119

Question ID: 413038

At a charity fundraiser there have been a total of 342 raffle tickets already sold. If a person then purchases two tickets rather than one, how much *more likely* are they to win?

A) 2.10.

B) 1.99.

C) 0.50.

Question #28 of 119

Question ID: 413078

A company says that whether it increases its dividends depends on whether its earnings increase. From this we know:

A) P(dividend increase | earnings increase) is not equal to P(earnings increase).

B) P(earnings increase | dividend increase) is not equal to P(earnings increase).

C) P(both dividend increase and earnings increase) = P(dividend increase).

Question #29 of 119

Question ID: 413111

After repeated experiments, the average of the outcomes should converge to:

A) the variance.

B) one.

C) the expected value.

Question #30 of 119

Question ID: 413115

For assets A and B we know the following: $E(R_A) = 0.10$, $E(R_B) = 0.10$, $Var(R_A) = 0.18$, $Var(R_B) = 0.36$ and the correlation of the returns is 0.6. What is the variance of the return of a portfolio that is equally invested in the two assets?

A) 0.1102.

B) 0.2114.

C) 0.1500.

Question #31 of 119

Question ID: 413056

Given the following table about employees of a company based on whether they are smokers or nonsmokers and whether or not they suffer from any allergies, what is the probability of being either a nonsmoker or not suffering from allergies?

	Suffer from Allergies	*Don't Suffer from Allergies*	*Total*
Smoker	35	25	60
Nonsmoker	55	185	240
Total	90	210	300

A) 0.38.

B) 0.88.

C) 0.50.

Question #32 of 119

Question ID: 413101

Joe Mayer, CFA, projects that XYZ Company's return on equity varies with the state of the economy in the following way:

State of Economy	*Probability of Occurrence*	*Company Returns*
Good	.20	20%
Normal	.50	15%
Poor	.30	10%

The standard deviation of XYZ's expected return on equity is *closest to:*

A) 3.5%.

B) 12.3%.

C) 1.5%.

Question #33 of 119

Question ID: 434199

There is a 40% probability that the economy will be good next year and a 60% probability that it will be bad. If the economy is good, there is a 50 percent probability of a bull market, a 30% probability of a normal market, and a 20% probability of a bear market. If the economy is bad, there is a 20% probability of a bull market, a 30% probability of a normal market, and a 50% probability of a bear market. What is the probability of a bull market next year?

A) 32%.

B) 20%.

C) 50%.

Question #34 of 119

Question ID: 413094

Given the following probability distribution, find the covariance of the expected returns for stocks A and B.

Event	$P(R_i)$	R_A	R_B
Recession	0.10	-5%	4%

Below Average	0.30	-2%	8%
Normal	0.50	10%	10%
Boom	0.10	31%	12%

A) 0.00109.

B) 0.00032.

C) 0.00174.

Question #35 of 119

Question ID: 413088

There is an 80% chance that the economy will be good next year and a 20% chance that it will be bad. If the economy is good, there is a 60% chance that XYZ Incorporated will have EPS of $3.00 and a 40% chance that their earnings will be $2.50. If the economy is bad, there is a 70% chance that XYZ Incorporated will have EPS of $1.50 and a 30% chance that their earnings will be $1.00. What is the firm's expected EPS?

A) $4.16.

B) $2.00.

C) $2.51.

Question #36 of 119

Question ID: 413058

If two events are independent, the probability that they both will occur is:

A) 0.50.

B) Cannot be determined from the information given.

C) 0.00.

Question #37 of 119

Question ID: 434195

Helen Pedersen has all her money invested in either of two mutual funds (A and B). She knows that there is a 40% probability that fund A will rise in price and a 60% chance that fund B will rise in price if fund A rises in price. What is the probability that both fund A and fund B will rise in price?

A) 0.40.

B) 0.24.

C) 1.00.

Question #38 of 119

Question ID: 413027

Which of the following is an empirical probability?

A) On a random draw, the probability of choosing a stock of a particular industry from the S&P 500 based on the number of firms.

B) For a stock, based on prior patterns of up and down days, the probability of the stock having a down day tomorrow.

C) The probability the Fed will lower interest rates prior to the end of the year.

Question #39 of 119

Question ID: 413121

Given P(X = 20, Y = 0) = 0.4, and P(X = 30, Y = 50) = 0.6, then COV(XY) is:

A) 25.00.

B) 125.00.

C) 120.00.

Question #40 of 119

Question ID: 413075

A bag of marbles contains 3 white and 4 black marbles. A marble will be drawn from the bag randomly three times and put back into the bag. Relative to the outcomes of the first two draws, the probability that the third marble drawn is white is:

A) independent.

B) conditional.

C) dependent.

Question #41 of 119

Question ID: 413060

Tully Advisers, Inc., has determined four possible economic scenarios and has projected the portfolio returns for two portfolios for their client under each scenario. Tully's economist has estimated the probability of each scenario as shown in the table below. Given this information, what is the expected return on portfolio A?

Scenario	*Probability*	*Return on Portfolio A*	*Return on Portfolio B*
A	15%	17%	19%
B	20%	14%	18%
C	25%	12%	10%
D	40%	8%	9%

A) 10.75%.

B) 9.25%.

C) 11.55%.

Question #42 of 119

Question ID: 413093

If given the standard deviations of the returns of two assets and the correlation between the two assets, which of the following would an analyst *least likely* be able to derive from these?

A) Covariance between the returns.

B) Strength of the linear relationship between the two.

C) Expected returns.

Question #43 of 119

Question ID: 413032

Last year, the average salary increase for poultry research assistants was 2.5%. Of the 10,000 poultry research assistants, 2,000 received raises in excess of this amount. The odds that a randomly selected poultry research assistant received a salary increase in excess of 2.5% are:

A) 20%.

B) 1 to 5.

C) 1 to 4.

Question #44 of 119

Question ID: 413081

An investor is considering purchasing ACQ. There is a 30% probability that ACQ will be acquired in the next two months. If ACQ is acquired, there is a 40% probability of earning a 30% return on the investment and a 60% probability of earning 25%. If ACQ is not acquired, the expected return is 12%. What is the expected return on this investment?

A) 12.3%.

B) 18.3%.

C) 16.5%.

Question #45 of 119

Question ID: 413073

Given the following table about employees of a company based on whether they are smokers or nonsmokers and whether or not they suffer from any allergies, what is the probability of both suffering from allergies and not suffering from allergies?

	Suffer from Allergies	*Don't Suffer from Allergies*	*Total*
Smoker	35	25	60
Nonsmoker	55	185	240
Total	90	210	300

A) 1.00.

B) 0.00.

C) 0.50.

Question #46 of 119

Question ID: 413091

The covariance of returns on two investments over a 10-year period is 0.009. If the variance of returns for investment A is 0.020 and the variance of returns for investment B is 0.033, what is the correlation coefficient for the returns?

A) 0.350.

B) 0.687.

C) 0.444.

Question #47 of 119

Question ID: 413029

Which of the following sets of numbers does NOT meet the requirements for a set of probabilities?

A) (0.50, 0.50).

B) (0.10, 0.20, 0.30, 0.40, 0.50).

C) (0.10, 0.20, 0.30, 0.40).

Question #48 of 119

Question ID: 413126

An analyst expects that 20% of all publicly traded companies will experience a decline in earnings next year. The analyst has developed a ratio to help forecast this decline. If the company is headed for a decline, there is a 90% chance that this ratio will be negative. If the company is not headed for a decline, there is only a 10% chance that the ratio will be negative. The analyst randomly selects a company with a negative ratio. Based on Bayes' theorem, the updated probability that the company will experience a decline is:

A) 26%.

B) 69%.

C) 18%.

Question #49 of 119

Question ID: 413120

Given P(X = 2, Y = 10) = 0.3, P(X = 6, Y = 2.5) = 0.4, and P(X = 10, Y = 0) = 0.3, then COV(XY) is:

A) -12.0.

B) 24.0.

C) 6.0.

Question #50 of 119

Question ID: 413104

Assume two stocks are perfectly negatively correlated. Stock A has a standard deviation of 10.2% and stock B has a standard deviation of 13.9%. What is the standard deviation of the portfolio if 75% is invested in A and 25% in B?

A) 4.18%.

B) 0.00%.

C) 0.17%.

Question #51 of 119

Question ID: 413089

There is a 60% chance that the economy will be good next year and a 40% chance that it will be bad. If the economy is good, there is a 70% chance that XYZ Incorporated will have EPS of $5.00 and a 30% chance that their earnings will be $3.50. If the economy is bad, there is an 80% chance that XYZ Incorporated will have EPS of $1.50 and a 20% chance that their earnings will be $1.00. What is the firm's expected EPS?

A) $2.75.

B) $5.95.

C) $3.29.

Question #52 of 119

Question ID: 413117

Use the following probability distribution to calculate the standard deviation for the portfolio.

State of the Economy	*Probability*	*Return on Portfolio*
Boom	0.30	15%
Bust	0.70	3%

A) 6.0%.

B) 5.5%.

C) 6.5%.

Question #53 of 119

Question ID: 413033

Each lottery ticket discloses the odds of winning. These odds are based on:

A) a priori probability.

B) the best estimate of the Department of Gaming.

C) past lottery history.

Question #54 of 119

Question ID: 413034

Which of the following is an *a priori* probability?

A) The probability the Fed will lower interest rates prior to the end of the year.

B) On a random draw, the probability of choosing a stock of a particular industry from the S&P 500.

C) For a stock, based on prior patterns of up and down days, the probability of the stock having a down day tomorrow.

Question #55 of 119

Question ID: 413106

A two-sided but very thick coin is expected to land on its edge twice out of every 100 flips. And the probability of face up (heads) and the probability of face down (tails) are equal. When the coin is flipped, the prize is $1 for heads, $2 for tails, and $50 when the coin lands on its edge. What is the expected value of the prize on a single coin toss?

A) $2.47.

B) $1.50.

C) $17.67.

Question #56 of 119

Question ID: 413083

The events Y and Z are mutually exclusive and exhaustive: P(Y) = 0.4 and P(Z) = 0.6. If the probability of X given Y is 0.9, and the probability of X given Z is 0.1, what is the unconditional probability of X?

A) 0.42.

B) 0.33.

C) 0.40.

Question #57 of 119

Question ID: 413055

There is a 50% chance that the Fed will cut interest rates tomorrow. On any given day, there is a 67% chance the DJIA will increase. On days the Fed cuts interest rates, the probability the DJIA will go up is 90%. What is the probability that tomorrow the Fed will cut interest rates or the DJIA will go up?

A) 0.72.

B) 0.33.

C) 0.95.

Question #58 of 119

Question ID: 413043

Let A and B be two mutually exclusive events with P(A) = 0.40 and P(B) = 0.20. Therefore:

A) P(B|A) = 0.20.

B) P(A and B) = 0.

C) P(A and B) = 0.08.

Question #59 of 119

Question ID: 434202

A parking lot has 100 red and blue cars in it.

- 40% of the cars are red.
- 70% of the red cars have radios.
- 80% of the blue cars have radios.

What is the probability that the car is red given that it has a radio?

A) 47%.

B) 28%.

C) 37%.

Question #60 of 119

Question ID: 413023

If event A and event B cannot occur simultaneously, then events A and B are said to be:

A) statistically independent.

B) mutually exclusive.

C) collectively exhaustive.

Question #61 of 119

Question ID: 413130

Which of the following statements about counting methods is *least* accurate?

A) The multiplication rule of counting is used to determine the number of different ways to choose one object from each of two or more groups.

B) The combination formula determines the number of different ways a group of objects can be drawn in a specific order from a larger sized group of objects.

C) The labeling formula determines the number of different ways to assign a given number of different labels to a set of objects.

Question #62 of 119

Question ID: 485759

The following table shows the individual weightings and expected returns for the three stocks in an investor's portfolio:

Stock	Weight	$E(R_X)$
V	0.40	12%

M	0.35	8%
S	0.25	5%

What is the expected return of this portfolio?

A) 8.33%.

B) 9.05%.

C) 8.85%.

Question #63 of 119

Question ID: 413097

Given Cov(X,Y) = 1,000,000. What does this indicate about the relationship between X and Y?

A) It is strong and positive.

B) It is weak and positive.

C) Only that it is positive.

Question #64 of 119

Question ID: 413092

The covariance of the returns on investments X and Y is 18.17. The standard deviation of returns on X is 7%, and the standard deviation of returns on Y is 4%. What is the value of the correlation coefficient for returns on investments X and Y?

A) +0.32.

B) +0.65.

C) +0.85.

Question #65 of 119

Question ID: 413054

The following table summarizes the results of a poll taken of CEO's and analysts concerning the economic impact of a pending piece of legislation:

Group	*Think it will have a positive impact*	*Think it will have a negative impact*	*Total*
CEO's	40	30	70
Analysts	70	60	130
	110	90	200

What is the probability that a randomly selected individual from this group will be an analyst that thinks that the legislation will have a

positive impact on the economy?

A) 0.30.

B) 0.35.

C) 0.45.

Question #66 of 119

Question ID: 413107

For assets A and B we know the following: $E(R_A) = 0.10$, $E(R_B) = 0.20$, $Var(R_A) = 0.25$, $Var(R_B) = 0.36$ and the correlation of the returns is 0.6. What is the expected return of a portfolio that is equally invested in the two assets?

A) 0.2275.

B) 0.3050.

C) 0.1500.

Question #67 of 119

Question ID: 413112

Use the following data to calculate the standard deviation of the return:

- 50% chance of a 12% return
- 30% chance of a 10% return
- 20% chance of a 15% return

A) 2.5%.

B) 1.7%.

C) 3.0%.

Question #68 of 119

Question ID: 413059

There is a 30% probability of rain this afternoon. There is a 10% probability of having an umbrella if it rains. What is the chance of it raining and having an umbrella?

A) 3%.

B) 40%.

C) 33%.

Question #69 of 119

Question ID: 413044

Which probability rule determines the probability that two events will both occur?

A) The addition rule.

B) The multiplication rule.

C) The total probability rule.

Question #70 of 119

Question ID: 413090

The correlation coefficient for a series of returns on two investments is equal to 0.80. Their covariance of returns is 0.06974 . Which of the following are possible variances for the returns on the two investments?

A) 0.04 and 0.19.

B) 0.08 and 0.37.

C) 0.02 and 0.44.

Question #71 of 119

Question ID: 413051

A very large company has equal amounts of male and female employees. If a random sample of four employees is selected, what is the probability that all four employees selected are female?

A) 0.0256

B) 0.1600

C) 0.0625.

Question #72 of 119

Question ID: 413064

Thomas Baynes has applied to both Harvard and Yale. Baynes has determined that the probability of getting into Harvard is 25% and the probability of getting into Yale (his father's alma mater) is 42%. Baynes has also determined that the probability of being accepted at both schools is 2.8%. What is the probability of Baynes being accepted at either Harvard or Yale?

A) 10.5%.

B) 64.2%.

C) 7.7%.

Question #73 of 119

Question ID: 413024

Which of the following statements about probability is *most* accurate?

A) An outcome is the calculated probability of an event.

B) A conditional probability is the probability that two or more events will happen concurrently.

C) An event is a set of one or more possible values of a random variable.

Question #74 of 119

Question ID: 434197

A parking lot has 100 red and blue cars in it.

- 40% of the cars are red.
- 70% of the red cars have radios.
- 80% of the blue cars have radios.

What is the probability of selecting a car at random that is either red or has a radio?

A) 28%.

B) 76%.

C) 88%.

Question #75 of 119

Question ID: 413036

If the probability of an event is 0.20, what are the odds against the event occurring?

A) Four to one.

B) Five to one.

C) One to four.

Question #76 of 119

Question ID: 413030

An empirical probability is one that is:

A) derived from analyzing past data.

B) supported by formal reasoning.

C) determined by mathematical principles.

Question #77 of 119

Question ID: 413127

A portfolio manager wants to eliminate four stocks from a portfolio that consists of six stocks. How many ways can the four stocks be sold when the order of the sales is important?

A) 180.

B) 360.

C) 24.

Question #78 of 119

Question ID: 413098

Personal Advisers, Inc., has determined four possible economic scenarios and has projected the portfolio returns for two portfolios for their client under each scenario. Personal's economist has estimated the probability of each scenario as shown in the table below. Given this information, what is the covariance of the returns on Portfolio A and Portfolio B?

Scenario	*Probability*	*Return on Portfolio A*	*Return on Portfolio B*
A	15%	18%	19%
B	20%	17%	18%
C	25%	11%	10%
D	40%	7%	9%

A) 0.890223.

B) 0.002019.

C) 0.001898.

Question #79 of 119

Question ID: 710138

The "likelihood" of an event occurring is defined as a:

A) unconditional probability.

B) conditional probability.

C) joint probability.

Question #80 of 119

Question ID: 413103

What is the standard deviation of a portfolio if you invest 30% in stock one (standard deviation of 4.6%) and 70% in stock two

(standard deviation of 7.8%) if the correlation coefficient for the two stocks is 0.45?

A) 0.38%.

B) 6.83%.

C) 6.20%.

Question #81 of 119

Question ID: 413118

There is a 30% chance that the economy will be good and a 70% chance that it will be bad. If the economy is good, your returns will be 20% and if the economy is bad, your returns will be 10%. What is your expected return?

A) 15%.

B) 13%.

C) 17%.

Question #82 of 119

Question ID: 413079

If X and Y are independent events, which of the following is *most* accurate?

A) P(X or Y) = (P(X)) × (P(Y)).

B) P(X | Y) = P(X).

C) P(X or Y) = P(X) + P(Y).

Question #83 of 119

Question ID: 413047

A bond portfolio consists of four BB-rated bonds. Each has a probability of default of 24% and these probabilities are independent. What are the probabilities of all the bonds defaulting and the probability of all the bonds not defaulting, respectively?

A) 0.00332; 0.33360.

B) 0.04000; 0.96000.

C) 0.96000; 0.04000.

Question #84 of 119

Question ID: 712731

Which of the following statements regarding various statistical measures is *least* accurate?

A) The coefficient of variation is calculated by dividing the mean by the standard deviation.

B) Variance equals the sum of the squared deviations from the mean times the probability that that each outcome will occur.

C) The correlation coefficient is calculated by dividing the covariance of two random variables by the product of their standard deviations.

Question #85 of 119

Question ID: 710140

The probability of a new office building being built in town is 64%. The probability of a new office building that includes a coffee shop being built in town is 58%. If a new office building is built in town, the probability that it includes a coffee shop is *closest* to:

A) 58%.

B) 37%.

C) 91%.

Question #86 of 119

Question ID: 413109

Given P(X = 2) = 0.3, P(X = 3) = 0.4, P(X = 4) = 0.3. What is the variance of X?

A) 0.3.

B) 0.6.

C) 3.0.

Question #87 of 119

Question ID: 413072

In a given portfolio, half of the stocks have a beta greater than one. Of those with a beta greater than one, a third are in a computer-related business. What is the probability of a randomly drawn stock from the portfolio having both a beta greater than one and being in a computer-related business?

A) 0.667.

B) 0.167.

C) 0.333.

Question #88 of 119

Question ID: 413071

Data shows that 75 out of 100 tourists who visit New York City visit the Empire State Building. It rains or snows in New York City

one day in five. What is the joint probability that a randomly choosen tourist visits the Empire State Building on a day when it neither rains nor snows?

A) 60%.

B) 15%.

C) 95%.

Question #89 of 119

Question ID: 413065

Avery Scott, financial planner, recently obtained his CFA Charter and is considering multiple job offers. Scott devised the following four criteria to help him decide which offers to pursue most aggressively.

Criterion	*% Expected to Meet the Criteria*
1. Within 75 miles of San Francisco	0.85
2. Employee size less than 50	0.50
3. Compensation package exceeding $100,000	0.30
4. Three weeks of vacation	0.15

If Scott has 20 job offers and the probabilities of meeting each criterion are independent, how many are expected to meet all of his criteria? (Round to nearest whole number).

A) 1.

B) 3.

C) 0.

Question #90 of 119

Question ID: 434198

There is a 40% probability that the economy will be good next year and a 60% probability that it will be bad. If the economy is good, there is a 50 percent probability of a bull market, a 30% probability of a normal market, and a 20% probability of a bear market. If the economy is bad, there is a 20% probability of a bull market, a 30% probability of a normal market, and a 50% probability of a bear market. What is the joint probability of a good economy and a bull market?

A) 20%.

B) 50%.

C) 12%.

Question #91 of 119

Question ID: 413025

If two events are mutually exclusive, the probability that they both will occur at the same time is:

A) 0.50.

B) 0.00.

C) Cannot be determined from the information given.

Question #92 of 119

Question ID: 710137

Which of the following statements about the defining properties of probability is *least* accurate?

A) To state a probability, a set of mutually exclusive and exhaustive events must be defined.

B) The sum of the probabilities of events equals one if the events are mutually exclusive and exhaustive.

C) The probability of an event may be equal to zero or equal to one.

Question #93 of 119

Question ID: 413048

The probability of each of three independent events is shown in the table below. What is the probability of A and C occurring, but not B?

Event	*Probability of Occurrence*
A	25%
B	15%
C	42%

A) 10.5%.

B) 8.9%.

C) 3.8%.

Question #94 of 119

Question ID: 413108

Compute the standard deviation of a two-stock portfolio if stock A (40% weight) has a variance of 0.0015, stock B (60% weight) has a variance of 0.0021, and the correlation coefficient for the two stocks is -0.35?

A) 1.39%.

B) 0.07%.

C) 2.64%.

Question #95 of 119

Question ID: 413085

An analyst announces that an increase in the discount rate next quarter will double her earnings forecast for a firm. This is an example of a:

A) use of Bayes' formula.

B) joint probability.

C) conditional expectation.

Question #96 of 119

Question ID: 413119

The joint probability function for returns on an equity index (RI) and returns on a stock (RS)is given in the following table:

	Returns on Index (R_I)		
Return on stock (R_S)	$R_I = 0.16$	$R_I = 0.02$	$R_I = -0.10$
$R_S = 0.24$	0.25	0.00	0.00
$R_S = 0.03$	0.00	0.45	0.00
$R_S = -0.15$	0.00	0.00	0.30

Covariance between stock returns and index returns is *closest* to:

A) 0.029.

B) 0.014.

C) 0.019.

Question #97 of 119

Question ID: 413131

For the task of arranging a given number of items without any sub-groups, this would require:

A) the permutation formula.

B) only the factorial function.

C) the labeling formula.

Question #98 of 119

Question ID: 498733

Which of the following rules is used to state an unconditional expected value in terms of conditional expected values?

A) Multiplication rule.

B) Total probability rule.

C) Addition rule.

Question #99 of 119

Question ID: 413035

If the odds against an event occurring are twelve to one, what is the probability that it will occur?

A) 0.9231.

B) 0.0833.

C) 0.0769.

Question #100 of 119

Question ID: 434203

A supervisor is evaluating ten subordinates for their annual performance reviews. According to a new corporate policy, for every ten employees, two must be evaluated as "exceeds expectations," seven as "meets expectations," and one as "does not meet expectations." How many different ways is it possible for the supervisor to assign these ratings?

A) 5,040.

B) 10,080.

C) 360.

Question #101 of 119

Question ID: 413113

Tully Advisers, Inc., has determined four possible economic scenarios and has projected the portfolio returns for two portfolios for their client under each scenario. Tully's economist has estimated the probability of each scenario, as shown in the table below. Given this information, what is the standard deviation of returns on portfolio A?

Scenario	*Probability*	*Return on Portfolio A*	*Return on Portfolio B*
A	15%	18%	19%
B	20%	17%	18%
C	25%	11%	10%

D	40%	7%	9%

A) 1.140%.

B) 4.53%.

C) 5.992%.

Question #102 of 119

Question ID: 413110

Given the following probability distribution, find the standard deviation of expected returns.

Event	$P(R_A)$	R_A
Recession	0.10	-5%
Below Average	0.30	-2%
Normal	0.50	10%
Boom	0.10	31%

A) 12.45%.

B) 7.00%.

C) 10.04%.

Question #103 of 119

Question ID: 413063

The following table summarizes the availability of trucks with air bags and bucket seats at a dealership.

	Bucket Seats	*No Bucket Seats*	*Total*
Air Bags	75	50	125
No Air Bags	35	60	95
Total	110	110	220

What is the probability of selecting a truck at random that has either air bags or bucket seats?

A) 107%.

B) 73%.

C) 34%.

Question #104 of 119

Question ID: 413124

Bonds rated B have a 25% chance of default in five years. Bonds rated CCC have a 40% chance of default in five years. A portfolio consists of 30% B and 70% CCC-rated bonds. If a randomly selected bond defaults in a five-year period, what is the probability that it was a B-rated bond?

A) 0.625.

B) 0.211.

C) 0.250.

Question #105 of 119

Question ID: 413066

Pat Binder, CFA, is examining the effect of an inverted yield curve on the stock market. She determines that in the past century, 75% of the times the yield curve has inverted, a bear market in stocks began within the next 12 months. Binder believes the probability of an inverted yield curve in the next year is 20%. Binder's estimate of the probability that there will be an inverted yield curve in the next year followed by a bear market is *closest to:*

A) 50%.

B) 15%.

C) 38%.

Question #106 of 119

Question ID: 413053

Jessica Fassler, options trader, recently wrote two put options on two different underlying stocks (AlphaDog Software and OmegaWolf Publishing), both with a strike price of $11.50. The probabilities that the prices of AlphaDog and OmegaWolf stock will decline below the strike price are 65% and 47%, respectively. The probability that at least one of the put options will fall below the strike price is approximately:

A) 1.00.

B) 0.31.

C) 0.81.

Question #107 of 119

Question ID: 413128

A firm wants to select a team of five from a group of ten employees. How many ways can the firm compose the team of five?

A) 120.

B) 25.

C) 252.

Question #108 of 119

Question ID: 710141

A firm is going to create three teams of four from twelve employees. How many ways can the twelve employees be selected for the three teams?

A) 1,320.

B) 34,650.

C) 495.

Question #109 of 119

Question ID: 413123

The probability of A is 0.4. The probability of A^C is 0.6. The probability of (B | A) is 0.5, and the probability of (B | A^C) is 0.2. Using Bayes' formula, what is the probability of (A | B)?

A) 0.125.

B) 0.625.

C) 0.375.

Question #110 of 119

Question ID: 413087

There is a 90% chance that the economy will be good next year and a 10% chance that it will be bad. If the economy is good, there is a 60% chance that XYZ Incorporated will have EPS of $4.00 and a 40% chance that their earnings will be $3.00. If the economy is bad, there is an 80% chance that XYZ Incorporated will have EPS of $2.00 and a 20% chance that their earnings will be $1.00. What is the firm's expected EPS?

A) $5.40.

B) $3.42.

C) $2.50.

Question #111 of 119

Question ID: 413102

An investor has two stocks, Stock R and Stock S in her portfolio. Given the following information on the two stocks, the portfolio's

standard deviation is *closest* to:

- $\sigma_R = 34\%$
- $\sigma_S = 16\%$
- $r_{R,S} = 0.67$
- $W_R = 80\%$
- $W_S = 20\%$

A) 29.4%.

B) 7.8%.

C) 8.7%.

Question #112 of 119

Question ID: 413069

The following table summarizes the availability of trucks with air bags and bucket seats at a dealership.

	Bucket seats	*No Bucket Seats*	*Total*
Air Bags	75	50	125
No Air Bags	35	60	95
Total	110	110	220

What is the probability of randomly selecting a truck with air bags and bucket seats?

A) 0.34.

B) 0.28.

C) 0.16.

Question #113 of 119

Question ID: 434201

An economist estimates a 60% probability that the economy will expand next year. The technology sector has a 70% probability of outperforming the market if the economy expands and a 10% probability of outperforming the market if the economy does not expand. Given the new information that the technology sector will not outperform the market, the probability that the economy will not expand is *closest* to:

A) 33%.

B) 67%.

C) 54%.

Question #114 of 119

Question ID: 413061

The following table summarizes the results of a poll taken of CEO's and analysts concerning the economic impact of a pending piece of legislation:

Group	*Think it will have a positive impact*	*Think it will have a negative impact*	*Total*
CEO's	40	30	70
Analysts	70	60	130
	110	90	200

What is the probability that a randomly selected individual from this group will be either an analyst or someone who thinks this legislation will have a positive impact on the economy?

A) 0.85.

B) 0.75.

C) 0.80.

Question #115 of 119

Question ID: 413037

A company has two machines that produce widgets. An older machine produces 16% defective widgets, while the new machine produces only 8% defective widgets. In addition, the new machine employs a superior production process such that it produces three times as many widgets as the older machine does. Given that a widget was produced by the new machine, what is the probability it is NOT defective?

A) 0.06.

B) 0.92.

C) 0.76.

Question #116 of 119

Question ID: 413045

The multiplication rule of probability is used to calculate the:

A) probability of at least one of two events.

B) unconditional probability of an event, given conditional probabilities.

C) joint probability of two events.

Question #117 of 119

Question ID: 413084

A conditional expectation involves:

A) calculating the conditional variance.

B) refining a forecast because of the occurrence of some other event.

C) determining the expected joint probability.

Question #118 of 119

Question ID: 413049

If two fair coins are flipped and two fair six-sided dice are rolled, all at the same time, what is the probability of ending up with two heads (on the coins) and two sixes (on the dice)?

A) 0.8333.

B) 0.0069.

C) 0.4167.

Question #119 of 119

Question ID: 413082

Firm A can fall short, meet, or exceed its earnings forecast. Each of these events is equally likely. Whether firm A increases its dividend will depend upon these outcomes. Respectively, the probabilities of a dividend increase conditional on the firm falling short, meeting or exceeding the forecast are 20%, 30%, and 50%. The unconditional probability of a dividend increase is:

A) 0.333.

B) 0.500.

C) 1.000.