

### Question #1 of 96

Question ID: 1456450

For a continuous uniform distribution that can take on values only between 2 and 10, the probability of an outcome:

- A) equal to 4 is 11.1%.
  - B) less than 3 is 12.5%.
  - C) greater than 5 is 27.5%.
- 

### Question #2 of 96

Question ID: 1456430

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

- A) A probability distribution includes a listing of all the possible outcomes of an experiment.
  - B) In a binomial distribution each observation has only two possible outcomes that are mutually exclusive.
  - C) A probability distribution is, by definition, normally distributed.
- 

### Question #3 of 96

Question ID: 1456493

Which of the following portfolios provides the optimal "safety first" return if the minimum acceptable return is 9%?

Portfolio	Expected Return (%)	Standard Deviation (%)
1	13	5
2	11	3
3	9	2

- A) 2.
- B) 3.

C) 1.

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#### Question #4 of 96

Question ID: 1456515

A random variable with which of the following probability distributions will have the greatest probability of an outcome more than two standard deviations from the mean?

- A) Student's  $t$ -distribution with 18 degrees of freedom.
  - B) Student's  $t$ -distribution with 15 degrees of freedom.
  - C) Standard normal distribution.
- 

#### Question #5 of 96

Question ID: 1456453

A casual laborer has a 70% probability of finding work on each day that she reports to the day labor marketplace. What is the probability that she will work three days out of five?

- A) 0.3087.
  - B) 0.3192.
  - C) 0.6045.
- 

#### Question #6 of 96

Question ID: 1456465

Multivariate distributions can describe:

- A) discrete random variables only.
  - B) continuous random variables only.
  - C) either discrete or continuous random variables.
- 

#### Question #7 of 96

Question ID: 1456520

Which of the following statements describes a limitation of Monte Carlo simulation?

- A)** Outcomes of a simulation can only be as accurate as the inputs to the model.
  - B)** Simulations do not consider possible input values that lie outside historical experience.
  - C)** Variables are assumed to be normally distributed but may actually have non-normal distributions.
- 

### Question #8 of 96

Question ID: 1456477

A stock portfolio has had a historical average annual return of 12% and a standard deviation of 20%. The returns are normally distributed. The range -27.2 to 51.2% describes a:

- A)** 68% confidence interval.
  - B)** 99% confidence interval.
  - C)** 95% confidence interval.
- 

### Question #9 of 96

Question ID: 1456510

With 60 observations, what is the appropriate number of degrees of freedom to use when carrying out a statistical test on the mean of a population?

- A)** 59.
  - B)** 60.
  - C)** 61.
- 

### Question #10 of 96

Question ID: 1456438

A random variable  $X$  is continuous and bounded between zero and five,  $X: (0 \leq X \leq 5)$ . The cumulative distribution function (cdf) for  $X$  is  $F(x) = x / 5$ . Calculate  $P(2 \leq X \leq 4)$ .

- A)** 1.00.
- B)** 0.50.

C) 0.40.

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### Question #11 of 96

Question ID: 1456481

A grant writer for a local school district is trying to justify an application for funding an after-school program for low-income families. Census information for the school district shows an average household income of \$26,200 with a standard deviation of \$8,960. Assuming that the household income is normally distributed, what is the percentage of households in the school district with incomes of less than \$12,000?

- A) 15.87%.
  - B) 5.71%.
  - C) 9.92%.
- 

### Question #12 of 96

Question ID: 1456506

If a stock decreases from \$90 to \$80, the continuously compounded rate of return for the period is:

- A) -0.1000.
  - B) -0.1250.
  - C) -0.1178.
- 

### Question #13 of 96

Question ID: 1456480

The probability that a normally distributed random variable will be more than two standard deviations above its mean is:

- A) 0.4772.
  - B) 0.0228.
  - C) 0.9772.
-

**Question #14 of 96**

Question ID: 1456498

If random variable  $Y$  follows a lognormal distribution then the natural log of  $Y$  must be:

- A)** lognormally distributed.
  - B)** normally distributed.
  - C)** denoted as  $e^x$ .
- 

**Question #15 of 96**

Question ID: 1456458

In a normal distribution, the:

- A)** median equals the mode.
  - B)** skew is positive.
  - C)** kurtosis is 4.
- 

**Question #16 of 96**

Question ID: 1456451

For a certain class of junk bonds, the probability of default in a given year is 0.2. Whether one bond defaults is independent of whether another bond defaults. For a portfolio of five of these junk bonds, what is the probability that zero or one bond of the five defaults in the year ahead?

- A)** 0.7373.
  - B)** 0.0819.
  - C)** 0.4096.
- 

**Question #17 of 96**

Question ID: 1456497

Expected returns and standard deviations of returns for three portfolios are shown in the following table:

Portfolio	Expected Return	Standard Deviation
1	9%	5%
2	8%	4%
3	7%	3%

Assuming the risk-free rate is 3%, an investor who wants to minimize the probability of returns less than 5% should choose:

- A) Portfolio 2.
- B) Portfolio 1.
- C) Portfolio 3.

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### Question #18 of 96

Question ID: 1456460

Which of the following statements about a normal distribution is *least* accurate?

- A) Approximately 34% of the observations fall within plus or minus one standard deviation of the mean.
- B) Kurtosis is equal to 3.
- C) The distribution is completely described by its mean and variance.

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### Question #19 of 96

Question ID: 1456489

A food retailer has determined that the mean household income of her customers is \$47,500 with a standard deviation of \$12,500. She is trying to justify carrying a line of luxury food items that would appeal to households with incomes greater than \$60,000. Based on her information and assuming that household incomes are normally distributed, what percentage of households in her customer base has incomes of \$60,000 or more?

- A) 15.87%.
- B) 2.50%.

C) 5.00%.

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**Question #20 of 96**

Question ID: 1456508

A stock increased in value last year. Which will be greater, its continuously compounded or its holding period return?

- A) Its continuously compounded return.
  - B) Its holding period return.
  - C) Neither, they will be equal.
- 

**Question #21 of 96**

Question ID: 1456490

An investment has an expected return of 10% with a standard deviation of 5%. If the returns are normally distributed, the probability of losing money is *closest* to:

- A) 16.0%.
  - B) 5.0%.
  - C) 2.5%.
- 

**Question #22 of 96**

Question ID: 1456486

## Standard Normal Distribution

$P(Z \leq z) = N(z)$  for  $z \geq 0$

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.5	0.6915	0.6950	0.6985	0.7019	0.7054	0.7088	0.7123	0.7157	0.7190	0.7224
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389
1.0	0.8413	0.8438	0.8461	0.8485	0.8508	0.8531	0.8554	0.8577	0.8599	0.8621
1.1	0.8643	0.8665	0.8686	0.8708	0.8729	0.8749	0.8770	0.8790	0.8810	0.8830
1.2	0.8849	0.8869	0.8888	0.8907	0.8925	0.8944	0.8962	0.8980	0.8997	0.9015
1.3	0.9032	0.9049	0.9066	0.9082	0.9099	0.9115	0.9131	0.9147	0.9162	0.9177
1.4	0.9192	0.9207	0.9222	0.9236	0.9251	0.9265	0.9279	0.9292	0.9306	0.9319

Given a normally distributed population with a mean income of \$40,000 and standard deviation of \$7,500, what percentage of the population makes between \$30,000 and \$35,000?

- A) 15.96.
  - B) 13.34.
  - C) 41.67.
- 

## Question #23 of 96

Question ID: 1456434

A random variable that has a countable number of possible values is *best* described as a:

- A) discrete random variable.
  - B) probability distribution.
  - C) continuous random variable.
-



Which of the following is NOT an assumption of the binomial distribution?

- A) Random variable X is discrete.
  - B) The expected value is a whole number.
  - C) The trials are independent.
- 

## Question #25 of 96

Question ID: 1456467

In a multivariate normal distribution, a correlation tells the:

- A) overall relationship between all the variables.
  - B) relationship between the means and variances of the variables.
  - C) strength of the linear relationship between two of the variables.
- 

## Question #26 of 96

Question ID: 1456435

Which of the following is *least likely* to be an example of a discrete random variable?

- A) The number of days of sunshine in the month of May 2006 in a particular city.
  - B) The rate of return on a real estate investment.
  - C) Quoted stock prices on the NASDAQ.
- 

## Question #27 of 96

Question ID: 1456468

A multivariate distribution is *best* defined as describing the behavior of:

- A) a random variable with more than two possible outcomes.
  - B) two or more independent random variables.
  - C) two or more dependent random variables.
-

**Question #28 of 96**

Question ID: 1456512

Which one of the following statements about the t-distribution is *most* accurate?

- A) The t-distribution is positively skewed.
  - B) The t-distribution has thinner tails compared to the normal distribution.
  - C) The t-distribution approaches the standard normal distribution as the degrees of freedom increase.
- 

**Question #29 of 96**

Question ID: 1456431

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

- A) The skewness of a normal distribution is zero.
  - B) A binomial probability distribution is an example of a continuous probability distribution.
  - C) A discrete random variable is a variable that can assume only certain clearly separated values resulting from a count of some set of items.
- 

**Question #30 of 96**

Question ID: 1456483

**Cumulative Z-Table**

z	0.04	0.05
1.8	0.9671	0.9678
1.9	0.9738	0.9744
2.0	0.9793	0.9798
2.1	0.9838	0.9842

The owner of a bowling alley determined that the average weight for a bowling ball is 12 pounds with a standard deviation of 1.5 pounds. A ball denoted "heavy" should be one of the top 2% based on weight. Assuming the weights of bowling balls are normally distributed, at what weight (in pounds) should the "heavy" designation be used?

- A) 14.00 pounds.
  - B) 14.22 pounds.
  - C) 15.08 pounds.
- 

### Question #31 of 96

Question ID: 1456514

Segment of the table of critical values for Student's t-distribution:

Level of Significance for a One-Tailed Test		
df	0.050	0.025
Level of Significance for a Two-Tailed Test		
df	0.10	0.05
28	1.701	2.048
29	1.699	2.045
30	1.697	2.042
40	1.684	2.021

For a *t*-distributed test statistic with 30 degrees of freedom, a one-tailed test specifying the parameter greater than some value and a 95% confidence level, the critical value is:

- A) 1.684.
  - B) 1.697.
  - C) 2.042.
- 

### Question #32 of 96

Question ID: 1456454

Assume 30% of the CFA candidates have a degree in economics. A random sample of three CFA candidates is selected. What is the probability that none of them has a degree in economics?

- A) 0.027.
- B) 0.343.

C) 0.900.

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### Question #33 of 96

Question ID: 1456447

Consider a random variable  $X$  that follows a continuous uniform distribution:  $7 \leq X \leq 20$ .

Which of the following statements is *least* accurate?

A)  $F(12 \leq X \leq 16) = 0.307$ .

B)  $F(21) = 0.00$ .

C)  $F(10) = 0.23$ .

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### Question #34 of 96

Question ID: 1456476

A stock portfolio's returns are normally distributed. It has had a mean annual return of 25% with a standard deviation of 40%. The probability of a return between -41% and 91% is *closest to*:

A) 65%.

B) 90%.

C) 95%.

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### Question #35 of 96

Question ID: 1456475

The mean return of a portfolio is 20% and its standard deviation is 4%. The returns are normally distributed. Which of the following statements about this distribution are *least* accurate? The probability of receiving a return:

A) of less than 12% is 0.025.

B) in excess of 16% is 0.16.

C) between 12% and 28% is 0.95.

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**Question #36 of 96**

Question ID: 1456439

Which of the following qualifies as a cumulative distribution function?

- A)**  $F(1) = 0$ ,  $F(2) = 0.25$ ,  $F(3) = 0.50$ ,  $F(4) = 1$ .
  - B)**  $F(1) = 0$ ,  $F(2) = 0.5$ ,  $F(3) = 0.5$ ,  $F(4) = 0$ .
  - C)**  $F(1) = 0.5$ ,  $F(2) = 0.25$ ,  $F(3) = 0.25$ ,  $F(4) = 1$ .
- 

**Question #37 of 96**

Question ID: 1456441

For a random variable defined over the interval 0 to 1 that has a cumulative distribution function of  $F(x) = x^3$ , the probability of an outcome between 20% and 70% is *closest* to:

- A)** 1/4.
  - B)** 1/3.
  - C)** 1/2.
- 

**Question #38 of 96**

Question ID: 1456523

One of the major limitations of Monte Carlo simulation is that it:

- A)** cannot provide the insight that analytic methods can.
  - B)** does not lend itself to performing "what if" scenarios.
  - C)** requires that variables be modeled using the normal distribution.
- 

**Question #39 of 96**

Question ID: 1456491

The mean and standard deviation of returns for three portfolios are listed below in percentage terms.

Portfolio X: Mean 5%, standard deviation 3%.

Portfolio Y: Mean 14%, standard deviation 20%.

Portfolio Z: Mean 19%, standard deviation 28%.

Using Roy's safety-first criteria and a threshold of 4%, select the optimal portfolio.

- A)** Portfolio X.
  - B)** Portfolio Y.
  - C)** Portfolio Z.
- 

### Question #40 of 96

Question ID: 1456448

The probability density function of a continuous uniform distribution is *best* described by a:

- A)** line segment with a 45-degree slope.
  - B)** horizontal line segment.
  - C)** line segment with a curvilinear slope.
- 

### Question #41 of 96

Question ID: 1456437

The cumulative distribution function for a random variable X is given in the following table:

$x$	$F(x)$
5	0.15
10	0.30
15	0.45
20	0.75
25	1.00

The probability of an outcome greater than 15 is:

- A) 75%.
  - B) 45%.
  - C) 55%.
- 

### Question #42 of 96

Question ID: 1456504

The continuously compounded rate of return that will generate a one-year holding period return of -6.5% is *closest* to:

- A) -5.7%.
  - B) -6.3%.
  - C) -6.7%.
- 

### Question #43 of 96

Question ID: 1456443

Which of the following random variables would be *most likely* to follow a discrete uniform distribution?

- A) The number of heads on the flip of two coins.
  - B) The outcome of a roll of a standard, six-sided die where X equals the number facing up on the die.
  - C) The outcome of the roll of two standard, six-sided dice where X is the sum of the numbers facing up.
- 

### Question #44 of 96

Question ID: 1456433

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

- A) Sixty-eight percent of the area under the normal curve falls between the mean and 1 standard deviation above the mean.
- B) The normal curve is asymmetrical about its mean.

- C) Five percent of the normal curve probability is more than two standard deviations from the mean.
- 

### Question #45 of 96

Question ID: 1456470

A multivariate distribution:

- A) applies only to binomial distributions.
  - B) gives multiple probabilities for the same outcome.
  - C) specifies the probabilities associated with groups of random variables.
- 

### Question #46 of 96

Question ID: 1456502

A stock that pays no dividend is currently priced at €42.00. One year ago the stock was €44.23. The continuously compounded rate of return is *closest to*:

- A) -5.04%.
  - B) +5.17%.
  - C) -5.17%.
- 

### Question #47 of 96

Question ID: 1456484

The average amount of snow that falls during January in Frostbite Falls is normally distributed with a mean of 35 inches and a standard deviation of 5 inches. The probability that the snowfall amount in January of next year will be between 40 inches and 26.75 inches is *closest to*:

- A) 68%.
  - B) 79%.
  - C) 87%.
-



**Question #48 of 96**

Question ID: 1456501

A lognormal distribution is *least likely* to be:

- A)** negatively skewed.
  - B)** used to model stock prices.
  - C)** bounded below by zero.
- 

**Question #49 of 96**

Question ID: 1456505

Given a holding period return of  $R$ , the continuously compounded rate of return is:

- A)**  $e^R - 1$ .
  - B)**  $\ln(1 + R)$ .
  - C)**  $\ln(1 + R) - 1$ .
- 

**Question #50 of 96**

Question ID: 1456457

A normal distribution can be completely described by its:

- A)** mean and mode.
  - B)** mean and variance.
  - C)** skewness and kurtosis.
- 

**Question #51 of 96**

Question ID: 1456466

A multivariate normal distribution that includes three random variables can be completely described by the means and variances of each of the random variables and the:

- A)** correlation coefficient of the three random variables.
- B)** correlations between each pair of random variables.
- C)** conditional probabilities among the three random variables.

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**Question #52 of 96**

Question ID: 1456474

An investment has a mean return of 15% and a standard deviation of returns equal to 10%. If returns are normally distributed, which of the following statements is *least* accurate? The probability of obtaining a return:

- A) greater than 25% is 0.32.
  - B) greater than 35% is 0.025.
  - C) between 5% and 25% is 0.68.
- 

**Question #53 of 96**

Question ID: 1456444

Possible outcomes for a discrete uniform distribution are the integers 2 to 9 inclusive. What is the probability of an outcome less than 5?

- A) 50.0%.
  - B) 62.5%.
  - C) 37.5%.
- 

**Question #54 of 96**

Question ID: 1456440

A cumulative distribution function for a random variable  $X$  is given as follows:

$x$	$F(x)$
5	0.14
10	0.25
15	0.86
20	1.00

The probability of an outcome less than or equal to 10 is:

- A) 14%.

B) 39%.

C) 25%.

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### Question #55 of 96

Question ID: 1456492

Which of the following portfolios provides the best "safety first" ratio if the minimum acceptable return is 6%?

Portfolio	Expected Return (%)	Standard Deviation (%)
1	13	5
2	11	3
3	9	2

A) 3.

B) 2.

C) 1.

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### Question #56 of 96

Question ID: 1456485

#### Standard Normal Distribution

$P(Z \leq z) = N(z)$  for  $z \geq 0$

z	0.00	0.01	0.02	0.03	0.04	0.05	0.06	0.07	0.08	0.09
0.6	0.7257	0.7291	0.7324	0.7357	0.7389	0.7422	0.7454	0.7486	0.7517	0.7549
0.7	0.7580	0.7611	0.7642	0.7673	0.7704	0.7734	0.7764	0.7794	0.7823	0.7852
0.8	0.7881	0.7910	0.7939	0.7967	0.7995	0.8023	0.8051	0.8078	0.8106	0.8133
0.9	0.8159	0.8186	0.8212	0.8238	0.8264	0.8289	0.8315	0.8340	0.8365	0.8389

John Cupp, CFA, has several hundred clients. The values of the portfolios Cupp manages are approximately normally distributed with a mean of \$800,000 and a standard deviation of \$250,000. The probability of a randomly selected portfolio being in excess of \$1,000,000 is:

A) 78.81%.

**B)** 17.36%.

**C)** 21.19%.

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### Question #57 of 96

Question ID: 1456461

If  $X$  has a normal distribution with  $\mu = 100$  and  $\sigma = 5$ , then there is approximately a 90% probability that:

**A)**  $P(90.2 < X < 109.8)$ .

**B)**  $P(91.8 < X < 108.3)$ .

**C)**  $P(93.4 < X < 106.7)$ .

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### Question #58 of 96

Question ID: 1456499

If a random variable  $x$  is lognormally distributed then  $\ln x$  is:

**A)** abnormally distributed.

**B)** defined as  $e^x$ .

**C)** normally distributed.

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### Question #59 of 96

Question ID: 1456488

The annual rainfall amount in Yucutat, Alaska, is normally distributed with a mean of 150 inches and a standard deviation of 20 inches. The 90% confidence interval for the annual rainfall in Yucutat is *closest* to:

**A)** 137 to 163 inches.

**B)** 117 to 183 inches.

**C)** 110 to 190 inches.

---

**Question #60 of 96**

Question ID: 1456472

A portfolio manager is looking at an investment that has an expected annual return of 10% with a standard deviation of annual returns of 5%. Assuming the returns are approximately normally distributed, the probability that the return will exceed 20% in any given year is *closest* to:

- A) 0.0%.
  - B) 2.28%.
  - C) 4.56%.
- 

**Question #61 of 96**

Question ID: 1456516

Which of the following distributions can only take on positive values?

- A) F-distribution.
  - B) Normal distribution.
  - C) Student's  $t$ -distribution.
- 

**Question #62 of 96**

Question ID: 1456429

A probability distribution is *least likely* to:

- A) contain all the possible outcomes.
  - B) have only non-negative probabilities.
  - C) give the probability that the distribution is realistic.
- 

**Question #63 of 96**

Question ID: 1456479

Approximately 95% of all observations for a normally distributed random variable fall in the interval:

- A)  $\mu \pm 3\sigma$ .

**B)**  $\mu \pm 2\sigma$ .

**C)**  $\mu \pm \sigma$ .

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### Question #64 of 96

Question ID: 1456455

There is an 80% probability of rain on each of the next six days. What is the probability that it will rain on exactly two of those days?

**A)** 0.15364.

**B)** 0.01536.

**C)** 0.24327.

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### Question #65 of 96

Question ID: 1456494

The mean and standard deviation of returns on three portfolios are listed below in percentage terms:

- Portfolio X: Mean 5%, standard deviation 3%.
- Portfolio Y: Mean 14%, standard deviation 20%.
- Portfolio Z: Mean 19%, standard deviation 28%.

Using Roy's safety first criteria and a threshold of 3%, which of these is the optimal portfolio?

**A)** Portfolio X.

**B)** Portfolio Z.

**C)** Portfolio Y.

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### Question #66 of 96

Question ID: 1456478

A group of investors wants to be sure to always earn at least a 5% rate of return on their investments. They are looking at an investment that has a normally distributed probability distribution with an expected rate of return of 10% and a standard deviation of 5%. The probability of meeting or exceeding the investors' desired return in any given year is *closest to*:

- A) 98%.
  - B) 84%.
  - C) 34%.
- 

### Question #67 of 96

Question ID: 1456487

**Cumulative z-table:**

z	0.00	0.01	0.02	0.03
1.6	0.9452	0.9463	0.9474	0.9484
1.7	0.9554	0.9564	0.9573	0.9582
1.8	0.9641	0.9649	0.9656	0.9664

Monthly sales of hot water heaters are approximately normally distributed with a mean of 21 and a standard deviation of 5. What is the probability of selling 12 hot water heaters or less next month?

- A) 1.80%.
  - B) 96.41%.
  - C) 3.59%.
- 

### Question #68 of 96

Question ID: 1456496

An investor is considering investing in one of the following three portfolios:

Statistical Measures	Portfolio X	Portfolio Y	Portfolio Z
Expected annual return	12%	17%	22%
Standard deviation of return	14%	20%	25%

If the investor's minimum acceptable return is 5%, the optimal portfolio using Roy's safety-first criterion is:

- A) Portfolio Z.
  - B) Portfolio Y.
  - C) Portfolio X.
- 

### Question #69 of 96

Question ID: 1456459

A normal distribution is completely described by its:

- A) mean, mode, and skewness.
  - B) variance and mean.
  - C) median and mode.
- 

### Question #70 of 96

Question ID: 1456471

Which of the following would *least likely* be categorized as a multivariate distribution?

- A) The return of a stock and the return of the DJIA.
  - B) The days a stock traded and the days it did not trade.
  - C) The returns of the stocks in the DJIA.
- 

### Question #71 of 96

Question ID: 1456509



A stated interest rate of 9% compounded continuously results in an effective annual rate *closest to*:

- A)** 9.20%.
  - B)** 9.42%.
  - C)** 9.67%.
- 

### Question #72 of 96

Question ID: 1456463

A normal distribution has a mean of 10 and a standard deviation of 4. Which of the following statements is *most accurate*?

- A)** 81.5% of all the observations will fall between 6 and 18.
  - B)** The probability of finding an observation below 2 is 5%.
  - C)** The probability of finding an observation at 14 or above is 32%.
- 

### Question #73 of 96

Question ID: 1456449

A discount brokerage firm states that the time between a customer order for a trade and the execution of the order is uniformly distributed between three minutes and fifteen minutes. If a customer orders a trade at 11:54 A.M., what is the probability that the order is executed after noon?

- A)** 0.500.
  - B)** 0.250.
  - C)** 0.750.
- 

### Question #74 of 96

Question ID: 1456469

In addition to the usual parameters that describe a normal distribution, to completely describe 10 random variables, a multivariate normal distribution requires knowing the:

- A)** 45 correlations.

- B) 10 correlations.
  - C) overall correlation.
- 

### Question #75 of 96

Question ID: 1462768

For a binomial random variable with a 40% probability of success on each trial, the expected number of successes in 12 trials is *closest* to:

- A) 5.6.
  - B) 4.8.
  - C) 7.2.
- 

### Question #76 of 96

Question ID: 1456428

A dealer in a casino has rolled a five on a single die three times in a row. What is the probability of her rolling another five on the next roll, assuming it is a fair die?

- A) 0.167.
  - B) 0.200.
  - C) 0.001.
- 

### Question #77 of 96

Question ID: 1456473

A client will move his investment account unless the portfolio manager earns at least a 10% rate of return on his account. The rate of return for the portfolio that the portfolio manager has chosen has a normal probability distribution with an expected return of 19% and a standard deviation of 4.5%. What is the probability that the portfolio manager will keep this account?

- A) 0.750.
- B) 0.950.
- C) 0.977.

---

**Question #78 of 96**

Question ID: 1456511

The  $t$ -distribution is appropriate for constructing confidence intervals based on small samples from a population with:

- A) unknown variance and a normal distribution.
  - B) known variance and a non-normal distribution.
  - C) unknown variance and a non-normal distribution.
- 

**Question #79 of 96**

Question ID: 1456519

For an F-distribution where both chi-square random variables are based on a sample size of 10, the degrees of freedom in the numerator are:

- A) 19.
  - B) 8.
  - C) 9.
- 

**Question #80 of 96**

Question ID: 1456495

Three portfolios with normally distributed returns are available to an investor who wants to minimize the probability that the portfolio return will be less than 5%. The risk and return characteristics of these portfolios are shown in the following table:

Portfolio	Expected return	Standard deviation
Epps	6%	4%
Flake	7%	9%
Grant	10%	15%

Based on Roy's safety-first criterion, which portfolio should the investor select?

- A) Grant.
- B) Flake.

C) Epps.

---

### Question #81 of 96

Question ID: 1456445

If  $X$  follows a continuous uniform distribution over the interval  $1 < X < 26$ , the probability that  $X$  is between 5 and 15 is *closest* to:

- A) 10%.
  - B) 40%.
  - C) 60%.
- 

### Question #82 of 96

Question ID: 1456442

The number of days a particular stock increases in a given five-day period is uniformly distributed between zero and five inclusive. In a given five-day trading week, what is the probability that the stock will increase exactly three days?

- A) 0.167.
  - B) 0.333.
  - C) 0.600.
- 

### Question #83 of 96

Question ID: 1456513

Which statement *best* describes the properties of Student's t-distribution? The t-distribution is:

- A) symmetrical, and defined by a single parameter.
  - B) symmetrical, and defined by two parameters.
  - C) skewed, and defined by a single parameter.
-

Standardizing a normally distributed random variable requires the:

- A) mean, variance and skewness.
  - B) natural logarithm of X.
  - C) mean and the standard deviation.
- 

**Question #85 of 96**

Question ID: 1456522

Bill Phillips is developing a Monte Carlo simulation to value a complex and thinly traded security. Phillips wants to model one input variable to have negative skewness and a second input variable to have positive excess kurtosis. In a Monte Carlo simulation, Phillips can appropriately use:

- A) only one of these variables.
  - B) neither of these variables.
  - C) both of these variables.
- 

**Question #86 of 96**

Question ID: 1456432

Which of the following is *least likely* a probability distribution?

- A) Flip a coin:  $P(H) = P(T) = 0.5$ .
  - B) Roll an irregular die:  $p(1) = p(2) = p(3) = p(4) = 0.2$  and  $p(5) = p(6) = 0.1$ .
  - C) Zeta Corp.:  $P(\text{dividend increases}) = 0.60$ ,  $P(\text{dividend decreases}) = 0.30$ .
- 

**Question #87 of 96**

Question ID: 1456517

As degrees of freedom increase, the Chi-square and F-distributions *most likely* become more:

- A) negative.
- B) asymmetric.

C) bell shaped.

---

**Question #88 of 96**

Question ID: 1456446

A random variable follows a continuous uniform distribution over 27 to 89. What is the probability of an outcome between 34 and 38?

- A) 0.0546.
  - B) 0.0645.
  - C) 0.0719.
- 

**Question #89 of 96**

Question ID: 1456503

For a given stated annual rate of return, compared to the effective rate of return with discrete compounding, the effective rate of return with continuous compounding will be:

- A) higher.
  - B) the same.
  - C) lower.
- 

**Question #90 of 96**

Question ID: 1456518

For a Chi-square distribution with a sample size of 10 the degrees of freedom are:

- A) 10.
  - B) 9.
  - C) 8.
- 

**Question #91 of 96**

Question ID: 1456507

Over a period of one year, an investor's portfolio has declined in value from 127,350 to 108,427. What is the continuously compounded rate of return?

- A) -13.84%.
  - B) -16.09%.
  - C) -14.86%.
- 

### Question #92 of 96

Question ID: 1456462

The lower limit of a normal distribution is:

- A) negative one.
  - B) zero.
  - C) negative infinity.
- 

### Question #93 of 96

Question ID: 1456464

Which of the following statements about a normal distribution is *least* accurate?

- A) Approximately 68% of the observations lie within +/- 1 standard deviation of the mean.
  - B) The mean and variance completely define a normal distribution.
  - C) A normal distribution has excess kurtosis of three.
- 

### Question #94 of 96

Question ID: 1456521

Monte Carlo simulation is necessary to:

- A) approximate solutions to complex problems.
  - B) compute continuously compounded returns.
  - C) reduce sampling error.
-

**Question #95 of 96**

Question ID: 1456500

Which of the following statements regarding the distribution of returns used for asset pricing models is *most* accurate?

- A)** Lognormal distribution returns are used for asset pricing models because they will not result in an asset return of less than -100%.
  - B)** Lognormal distribution returns are used because this will allow for negative returns on the assets.
  - C)** Normal distribution returns are used for asset pricing models because they will only allow the asset price to fall to zero.
- 

**Question #96 of 96**

Question ID: 1456436

Which of the following distributions is *most likely* a discrete distribution?

- A)** A univariate distribution.
- B)** A normal distribution.
- C)** A binomial distribution.