Fill in the P(X = x) values in the table below to give a legitimate probability distribution for the discrete random variable X, whose possible values are -2, -1, 4, 5, and 6.

|  |  |
| --- | --- |
| Value x of X | P(X = x) |
| -2 | 0.24 |
| -1 | 0.19 |
| 4 | 0.12 |
| 5 |  |
| 6 |  |

Let X be a random variable with the following probability distribution

|  |  |
| --- | --- |
| Value x of X | P(X = x) |
| -2 | 0.10 |
| -1 | 0.35 |
| 0 | 0.40 |
| 1 | 0.05 |
| 2 | 0.10 |

Find the expectation E (X) and variance Var (X) of X.

E (x) =

Var (X) =

P (Z > -2.15) =

P (Z < 0.98) =

P ( - 0.78 < Z < 2.20) =

Let Z be a standard normal random variable, Use the calculator provided to determine the value of c such that P ( -c < Z < c)= 0.9512

Carry your intermediate computations to at least four decimal places

Let Z be a standard normal random variable, Use the calculator provided to determine the value of c such that P ( -c < Z < c)= 0.9512

Let Z be a standard normal random variable, Use the calculator provided to determine the value of c such that P ( c < Z < c-1.17)= 0.0954

The scores on a particular test are normally distributed with a mean of 130 and a standard deviation of 15 what is the minimum score needed to be in the top 20% of the scores on the test. Carry your intermediate computations to a least four decimal places , and round your answer to a least one decimal place.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  |  |  |  | | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | |  |  | | --- | --- | | |  | | --- | |  |   **Normal distribution: Word problems**  Suppose that the time required to complete a 1040R tax form is normally distributed with a mean of http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?233minutes and a standard deviation of http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?23minutes. What proportion of 1040R tax forms will be completed in at most http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?22%3Aminutes? Round your answer to at least four decimal places. | | | | |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  |  |  |  | | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | |  |  | | --- | --- | | |  | | --- | |  |   ***t* distribution**  Use the calculator provided to solve the following problems.   * Consider a *t* distribution with http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?21degrees of freedom. Compute http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?S%23%2B%2E2%2D2%3B%23%25ow%23w%23%25ow%232%2D2%3B%2A. Round your answer to at least three decimal places. * Consider a *t* distribution with http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?25degrees of freedom. Find the value of http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%60such that http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?S%23%2Bw%23%25df%23%60%2A%23%3E%233%2D23. Round your answer to at least three decimal places. | | | | |

P (-1.18 < t < 1.18) =

C =

|  |
| --- |
|  |

**Chi-square distribution**

.

* Suppose that http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%25hkj%3Fpvs%3D1%3F%2Cpvs%3Dfollows a chi-square distribution with http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?20degrees of freedom. Compute http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?S%2B%25hkj%3Fpvs%3D1%3F%2Cpvs%3D%23%25of%2325%2A. Round your answer to at least three decimal places.
* Suppose again that http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%25hkj%3Fpvs%3D1%3F%2Cpvs%3Dfollows a chi-square distribution with http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?20degrees of freedom. Find http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?hsuch that http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?S%2B%25hkj%3Fpvs%3D1%3F%2Cpvs%3D%23%25df%23h%2A%23%3E%233%2D316. Round your answer to at least two decimal places.
* Find the median of the chi-square distribution with http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?20degrees of freedom. Round your answer to at least two decimal places.

P (x2 < 16) =

K=

Median =

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| |  |  |  |  |  | | --- | --- | --- | --- | --- | | |  |  |  |  | | --- | --- | --- | --- | | |  |  |  | | --- | --- | --- | | |  |  | | --- | --- | | |  | | --- | |  |   ***F* distribution**   * Consider an *F* distribution with http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?23numerator degrees of freedom and http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?04denominator degrees of freedom. Compute http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?S%23%2BE%23%25of%232%2D77%2A. Round your answer to at least three decimal places. * Consider an *F* distribution with http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?0%3Bnumerator degrees of freedom and http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?20denominator degrees of freedom. Find http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%60such that http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?S%23%2BE%23%25dw%23%60%2A%23%3E%233%2D316. Round your answer to at least two decimal places. | | | | |

P ( F < 1.44) =

C =

**Central limit theorem: Sample mean**

The mean salary offered to students who are graduating from Coastal State University this year is http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%2717%2F103, with a standard deviation of http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%270421. A random sample of http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%3B3Coastal State students graduating this year has been selected. What is the probability that the mean salary offer for these http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%3B3students is http://www.phoenix.aleks.com/alekscgi/x/math2htgif.exe/M?%2716%2F333or less?

Carry your intermediate computations to at least four decimal places. Round your answer to at least three decimal places.