



**Hustle
Probability & Statistics
Mu Alpha Theta 2006**

1

What is the probability of drawing a black heart from a standard 52 card deck of playing cards?

Answer:



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On the planet Oblock, the probability that a boy is born is $1/3$. If an Oblockian has 4 children, what is the probability 2 are boys?

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What is the positive difference between the mean and the range of the following set of data:
{5, 7, 9, 3, 2, 0, 8, 16}?

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The probability that the Lightning win any game is $2/7$. If their record for the past four games has been win, win, win, loss, what is the probability they will lose their fifth game?

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If, in a colony of guppies, the mean length is 4 inches and the standard deviation of the length is 0.2 inches, what z-score corresponds to a guppy with length 4.8 inches?

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6

Let A and B be two events. If $P(A) = 0.41$, $P(B) = 0.33$ and $P(A \cup B) = 0.68$, what is $P(A' \cup B)$?
(NOTE: A' denotes the complement of A)

Answer:



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7

In a circle of radius 7 feet, what is the probability that a point, chosen at random from anywhere inside the circle is chosen from within a sector of 60° ?

Answer:



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8

What is the area under the normal bell curve from $(0, \infty)$?

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In a colony of reindeer, the average height is 47 inches and the variance of the heights is 4 inches², what height (in inches) corresponds to a height 2 standard deviations below the mean?

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#10

Paula goes to the fair and decided to test her luck at a game of chance. If she plays 50 times and the probability of winning any game is 0.4, what is the standard deviation of the number of times she will win?

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11

Urn A has 3 white balls and 4 green balls.
Urn B has 2 white balls and 1 green ball.
If a ball is selected at random from Urn B
and placed into Urn A, what is the
probability a green ball is then selected
from Urn A?

Answer:



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12

If a probability density function is defined as $f(x) = \frac{3x^2}{8}$ on the interval $[0,2]$, what is the mean of the probability density function?

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What is the probability you get a sum greater than 3 when you roll three fair 6-sided dice?

Answer:



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#14

The average weight of Alex, Bonnie, Charley, Danielle, Earl and Frances is 200 pounds. If the average weight of Alex and Charley is 200 pounds and Earl weighs 215 pounds, what is the average weight of the girls (Bonnie, Danielle and Frances)?

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Answer:



15

Steve is correct 70% of the time. If he is on a game show where he is asked 120 questions, what is the expected number of questions he will get correct?

Answer:



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Answer:



16

In a class of 25 students, 10 people like pizza, 12 like ice cream and 3 like both. What is the probability that when a student is selected at random, they do not like either pizza or ice cream?

Answer:



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17

If a set of numbers, ρ , is defined to be the first eleven terms of the Fibonacci Sequence, what is the Interquartile Range of ρ ?

Answer:



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18

If the least-squares regression line for a set of data is $y = 0.25x - 4.5$ and the mean of the y-values is 8, what is the mean of the x-values?

Answer:



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Answer:



19

If three fair dice are rolled, what is the probability that three different prime numbers appear?

Answer:



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20

Correlations can take all values on the interval $[a,b]$, where $a < b$.

What is $3a + 5b$?

Answer:



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Answer:



21

If Sarah has received grades of 85, 94, 77, 50, 100 and 92 for tests in history, what grade must she get on her next test to make her test average 85 if the next test is weighted twice?

Answer:



21

If Sarah has received grades of 85, 94, 77, 50, 100 and 92 for tests in history, what grade must she get on her next test to make her test average 85 if the next test is weighted twice?

Answer:



21

If Sarah has received grades of 85, 94, 77, 50, 100 and 92 for tests in history, what grade must she get on her next test to make her test average 85 if the next test is weighted twice?

Answer:



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If Sarah has received grades of 85, 94, 77, 50, 100 and 92 for tests in history, what grade must she get on her next test to make her test average 85 if the next test is weighted twice?

Answer:



22

If the area under the probability density function to the right of x is 0.5684, what is the area under the curve to the left of x ?

Answer:



22

If the area under the probability density function to the right of x is 0.5684, what is the area under the curve to the left of x ?

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Answer:



23

If a parrot types on a typewriter with the numbers 0-9, what is the probability that when he takes 3 pecks, the number formed is a palindrome? (NOTE: If the parrot types a number that starts with 0, he tries again)

Answer:



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If a parrot types on a typewriter with the numbers 0-9, what is the probability that when he takes 3 pecks, the number formed is a palindrome? (NOTE: If the parrot types a number that starts with 0, he tries again)

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Answer:



24

If a parallelogram has vertices at $(1,2)$, $(3,5)$, $(8,2)$ and $(10,5)$, what is the probability that when a point is selected from within the parallelogram, it is selected from within 1 unit of the point $(5,2)$?

Answer:



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Answer:



25

Two groups, Pagong and Tagi, who each consist of eight members, must select 2 Pagongs and 2 Tagis to go to a meeting. How many different groups are possible?

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