

10

Suppose 20% of the students are smokers. In a random sample of 10 students, the probability that the number of nonsmokers equals the number of smokers is (5 Points)

- 0.1723
- 0.1156
- 0.2015
- 0.0921
- 0.0264

11

The weights of newborns (حديثي الولادة) are normally distributed with mean 3.2 and variance 1. A newborn is randomly selected. If his/her weight is more than 3.5 kgs, then the probability that his/her weight is less than 4 kgs equals $\frac{1}{2}$ (5 Points)

8

A sample data of 200 observations has mean 20 and variance 49. Using Chebyshev's rule, the number of observations between 10 and 30 is
(5 Points)

- at least 102
- at least 110
- at most 110
- at most 102
- at least 106

9

A box contains 10 balls numbered from 1 to 10. Three balls are drawn from this box one at a time without replacement. The probability that the numbers on the first and on the third draws (trials) are the same equals $\frac{1}{10}$
(5 Points)

9

A box contains 10 balls numbered from 1 to 10. Three balls are drawn from this box one at a time without replacement. The probability that the numbers on the first and on the third draws (trials) are the same equals

(5 Points)

1/10

1/9

1/100

1/1000

0

10

Suppose 20% of the students are smokers. In a random sample of 10 students, the probability that the number of nonsmokers equals the number of smokers is

(5 Points)

12


In a quiz, 3 students got 1, 5 students got 3 and 2 students got 5. The average score of these students in this quiz is
(5 Points)

- 3.30
- 2.80
- 2.50
- 3.11
- 3.00

13

Find the 66th percentile of this sample data

Classes: 1-5, 6-10, 11-15, 16-20.

Frequencies: 3, 6, 7, 4, respectively, (as shown in the following picture) 

(5 Points)

Class	1 – 5	6 – 10	11 – 15	16 – 20
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5

Suppose that 40% of the males and 30% of the females of a certain population are smokers. Two independent random samples, each of size 100 are selected from the males and females of these populations. The probability that the percentage of smokers in the males sample is greater than that in the females sample is
(5 Points)

- 0.8839
- 0.9319
- 0.7911
- 0.9657
- 0.8217

6

If we want to construct a 95% confidence interval with length 0.14 for the population proportion p , then minimum sample size needed is
(5 Points)

Let \bar{X} , \bar{Y} be the means of two independent samples of sizes 200 each. If these two samples are randomly selected from populations $N(\mu_1, 400)$ and $N(\mu_2, 200)$, respectively, then the variance of $\bar{X} - \bar{Y}$ equals (as shown in the following picture) 
(5 Points)

Let \bar{X}, \bar{Y} be the means of two independent samples of sizes 200 each. If these two samples are randomly selected from populations $N(\mu_1, 400)$ and $N(\mu_2, 200)$, respectively, then the variance of $\bar{X} - \bar{Y}$ equals

- 2
- 6
- 4
- 1
- 3

6

If we want to construct a 95% confidence interval with length 0.14 for the population proportion p , then minimum sample size needed is
(5 Points)

178

99

318

256

196

5

If we want to construct a 95% confidence interval with length 0.14 for the population proportion p , then minimum sample size needed is
(5 نقطة)

POWERUNIT

196 178 318 256 99

4

A random sample with size 6 and variance 3 is drawn from a normally distributed population with variance σ^2 . A 90% C.I. for σ^2 is (5 نقطة)

(8.734 , 0.903)

(21.83 ,2.26)

(17.47 , 1.81)

(13.095 , 1.355)

(28.45 , 3.10)

5

Let A, B and C be events such that

4

A sample of size 16, mean 20 and standard deviation 5 is randomly selected from a normally distributed population. We used this sample to test $H_0: \mu = \mu_0$ versus an alternative hypothesis. If the test statistic equals 4 then μ_0 equals
(5 Points)

- 19
- 18
- 16
- 15
- 17

11

The weights of newborns (حديثي الولادة) are normally distributed with mean 3.2 and variance 1. A newborn is randomly selected. If his/her weight is more than 3.5 kgs, then the probability that his/her weight is less than 4 kgs equals
(5 Points)

0.6179

0.7881

0.5331

0.4454


0.1702

12

In a quiz, 3 students got 1, 5 students got 3 and 2 students got 5. The average score of these students in this quiz is
(5 Points)

3.30

2.80

Let \bar{X} , \bar{Y} be the means of two independent samples of sizes 200 each. If these two samples are randomly selected from populations $N(\mu_1, 600)$ and $N(\mu_2, 200)$, respectively, then the variance of $\bar{X} - \bar{Y}$ equals (as shown in the following picture) 

(5 Points)

Let \bar{X}, \bar{Y} be the means of two independent samples of sizes 200 each. If these two samples are randomly selected from populations $N(\mu_1, 600)$ and $N(\mu_2, 200)$, respectively, then the variance of $\bar{X} - \bar{Y}$ equals

- 4
- 6
- 2
- 5
- 8

Let \bar{X} , \bar{Y} be the means of two independent samples of sizes 200 each. If these two samples are randomly selected from populations $N(\mu_1, 400)$ and $N(\mu_2, 200)$, respectively, then the variance of $\bar{X} - \bar{Y}$ equals (as shown in the following picture)

(5 نقطة)

Let \bar{X} , \bar{Y} be the means of two independent samples of sizes 200 each. If these two samples are randomly selected from populations $N(\mu_1, 400)$ and $N(\mu_2, 200)$; respectively, then the variance of $\bar{X} - \bar{Y}$ equals

2.8

22

A sample data of 300 observations has mean 20 and variance 49. Using Chebyshev's rule, the number of observations between 10 and 30 is
(5 Points)

at most 153

at most 160

at least 143

at least 153

at least 160

23

The interquartile range IQR of a sample data is 25, and the first quartile is 15. If each

0.0264

21

are (حديثي الولادة) The weights of newborns normally distributed with mean 3.2 and variance 1. A newborn is randomly selected. If his/her weight is more than 3.5 kgs, then the probability that his/her weight is less than 4 kgs equals (5 نقطة)

0.7881 0.1702 0.5331 0.6179 0.4454

22

10

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23

Let A, B be two mutually exclusive (disjoint) events. If $P(A)=0.4$ and $P(B)=0.3$, then the probability that not A and not B will occur

□ equals
(5 نقطة)

0.5

1

0.3

0.4

0.7

POWERUNIT

إرسال



0.2015

0.0264

21

are (حديثي الولادة) The weights of newborns normally distributed with mean 3.2 and variance 1. A newborn is randomly selected. If his/her weight is more than 3.5 kgs, then the probability that his/her weight is less than 4 kgs equals (5 نقطة)

0.7881

0.1702

0.5331

0.6179

0.4454

POWERUNIT



75



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15

Suppose that 35% of the males and 30% of the females of a certain population are smokers. Two independent random samples, each of size 100 are selected from the males and females of these populations. The probability that the percentage of smokers in the males sample is greater than that in the females sample is

(5 نقطة)

POWERUNIT 0.9012

0.6337

0.8315

0.7764

0.7010

The following is the probability distribution of a random variable X .

X	1	2	4	5	7
$P(X)$	0.3	0.3	0.1	0.2	0.1

Then $P(X \text{ is odd OR } X > 2)$ equals

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(5 Points)

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0.0921

0.2015

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POWERUNIT

23

Find the 66th percentile of this sample data
Classes: 1-5, 6-10, 11-15, 16-20.

2/2



Let X be a random variable. If $X = 1, 2, \text{ or } 3$ and the p.d.f. of X

is $P(X = k) = \frac{1}{3}$ for all $k = 1, 2, 3$. Then $E(X)$ equals

2/2



Let $X \sim \text{Binomial}(11, 0.5)$. Then $P(3 < X < 8)$ equals



0.773



0.854



0.612



0.893



0.552



 POWERUNIT



رقم الشعبة * []

4

A random sample of size 12, is selected from a population that has the normal distribution of standard deviation $\sigma = 5$. Then the 90th percentile of the variance of this sample is

[]
(5 نقطة)



39.2614

28.4541

32.6768

35.85227

42.3231

2/2



Let $X \sim \text{Binomial}(50, p)$. If $E(X) = 10$ then $\text{Var}(X)$ equals



8

10

6

12

4

POWERUNIT

0/2 In how many ways can 3 children ✗
select toys, one toy for each child,
from a box that contains 5 different
?toys

✗

10 ways

60 ways

6 ways

120 ways

3 ways

الإجابة الصحيحة

60 ways

POWERUNIT

2/2

A box contains 2 red and 3 black distinct balls. Two balls are randomly selected from this box without replacement. If the second ball is black, then the probability that the first ball was black is



0.30

0.60

0.70

0.50

0.40

 POWERUNIT 



2/2 Let A, B be independent events. ✓

Assume that $P(A) = P(B) = 0.3$. Then
 $P(A \cup B)$ equals

POWERUNIT

0.51



0.60



0.30



0.39



2/2



Suppose that 20% of corona infected people show symptoms (أعراض).

If 10 random corona infected people are selected, then the probability that at least one of them shows symptoms is

0.107

0.915

0.791

0.893

0.209



POWERUNIT

2/2



Let X be a random variable such that $E(X) = 8$.

If the standard deviation of X is 2 then $E(X^2)$ equals

60

64

56

62

68

 POWERUNIT



2/2 If an infected person is tested for corona, the probability that the test will give a positive result is 0.60 and if this person is not infected the probability that it will give a positive result is 0.10. Suppose that 2% of the people are corona infected. If one random person is tested for corona using this test, then the probability that the test will give a positive result is

0.17


0.06

0.11

0.60

0.02

POWERUNIT

2/2 If 4 students are selected, then in 
how many ways can we have
?exactly 2 smokers

4 ways

12 ways

2 ways

3 ways

6 ways

 POWER  UNIT 



نقطتان (2)

Let X be a random variable. If $X = 1, 2, \text{ or } 3$ and the p.d.f. of X is $P(X = k) = \frac{1}{3}$ for all $k = 1, 2, 3$. Then $E(X)$ equals

1

2

2.5

$\frac{1}{3}$

1.5

POWERUNIT