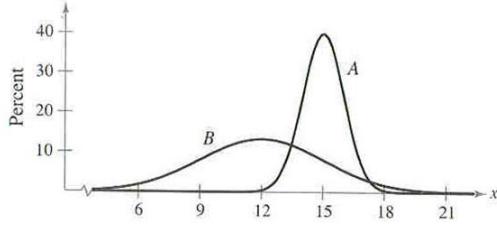


**#1 Probability & Statistics – Hustle
MA National Convention 2017**

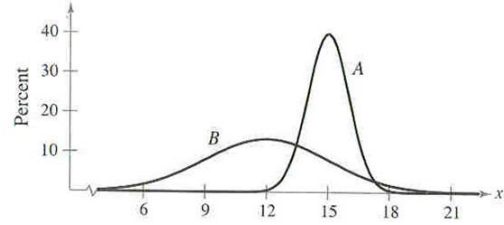


X = This distribution has the largest mean.
Y = This distribution has the largest variance.
Find (X,Y)

Answer : _____

Round 1 2 3 4 5

**#1 Probability & Statistics – Hustle
MA National Convention 2017**

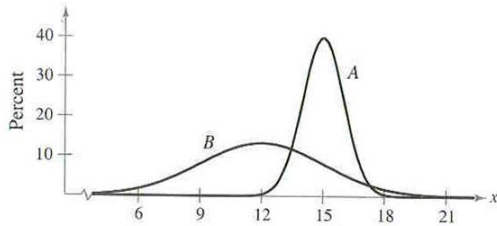


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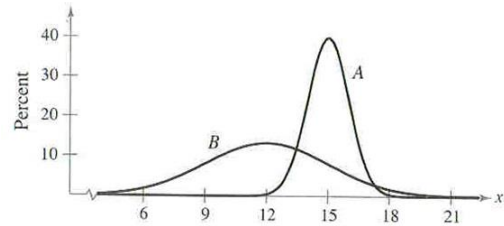


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Answer : _____

Round 1 2 3 4 5

**#1 Probability & Statistics – Hustle
MA National Convention 2017**



X = This distribution has the largest mean.
Y = This distribution has the largest variance.
Find (X,Y)

Answer : _____

Round 1 2 3 4 5

**#2 Probability & Statistics – Hustle
MA National Convention 2017**

NUMBER OF BOXES BOUGHT

0	5 8 9
1	3 5 6 7 8 8 9 9
2	1 1 2 2 3 4 5 8 8 9
3	0 1 2 3 3 5 6 7
4	5

KEY
1 5 = 15

Find the Interquartile Range of the
Number of Boxes Bought in the distribution.

Answer : _____

Round 1 2 3 4 5

**#2 Probability & Statistics – Hustle
MA National Convention 2017**

NUMBER OF BOXES BOUGHT

0	5 8 9
1	3 5 6 7 8 8 9 9
2	1 1 2 2 3 4 5 8 8 9
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MA National Convention 2017**

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MA National Convention 2017**

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3	0 1 2 3 3 5 6 7
4	5

KEY
1 5 = 15

Find the Interquartile Range of the
Number of Boxes Bought in the distribution.

Answer : _____

Round 1 2 3 4 5

**#3 Probability & Statistics – Hustle
MA National Convention 2017**

pulse rate

6		8 8 8 9
7		0 1 1 4 6 6 8
8		2 6 8 8
9		0 6
10		4
11		0

The general shape of the distribution is:

- (1) Symmetric
- (2) Right-Skewed
- (3) Left-Skewed
- (4) Uniform

Give the number value as your answer.

Answer : _____

Round 1 2 3 4 5

**#3 Probability & Statistics – Hustle
MA National Convention 2017**

pulse rate

6		8 8 8 9
7		0 1 1 4 6 6 8
8		2 6 8 8
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MA National Convention 2017**

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MA National Convention 2017**

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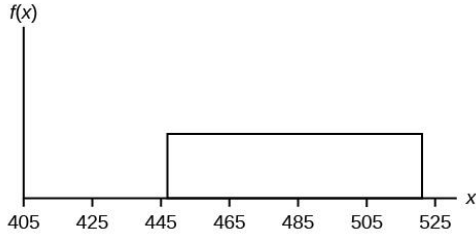
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Answer : _____

Round 1 2 3 4 5

**#4 Probability & Statistics – Hustle
MA® National Convention 2017**

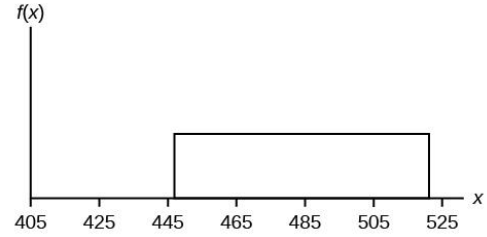


Given the domain of the uniform distribution function as $[446, 524]$, find $P(465 < x < 485)$.

Answer : _____

Round 1 2 3 4 5

**#4 Probability & Statistics – Hustle
MA® National Convention 2017**

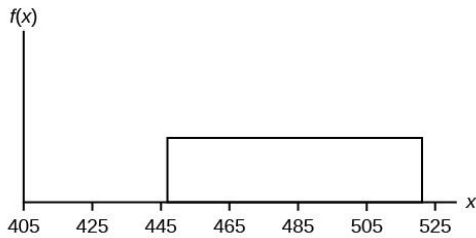


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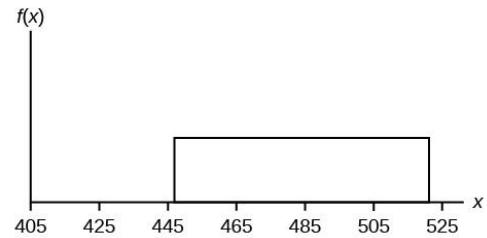


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**#4 Probability & Statistics – Hustle
MA® National Convention 2017**



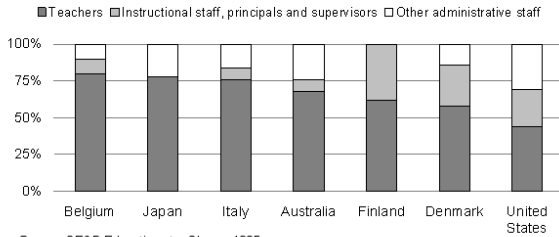
Given the domain of the uniform distribution function as $[446, 524]$, find $P(465 < x < 485)$.

Answer : _____

Round 1 2 3 4 5

#5 Probability & Statistics – Hustle MA@ National Convention 2017

Distribution of Educational Staff by Function in Selected Countries: 1995



Source: OECD Education at a Glance: 1995

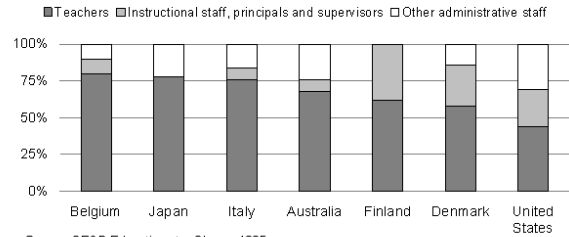
According to OECD at a Glance in 1995, this country had the smallest percentage of “Other administrative staff”. Find the number of distinguishable permutations in the name of that country.

Answer : _____

Round 1 2 3 4 5

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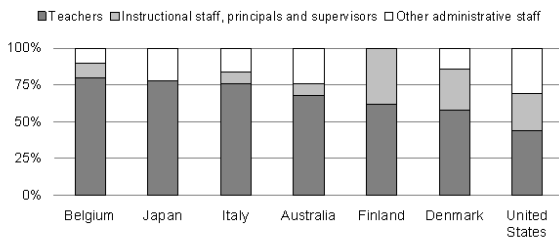
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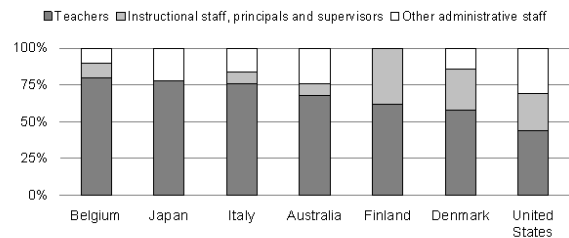
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Answer : _____

Round 1 2 3 4 5

**#6 Probability & Statistics – Hustle
MA National Convention 2017**

Region	% adults taking a holiday
East Anglia	50
East Midlands	64
Greater London	56
Humberside and Yorkshire	64
North	54
North West	59
South East	60
South West	61
West Midlands	56

The variable in this distribution is:

- (1) Region
- (2) % Adults taking a holiday

The data is:

- (3) Quantitative
- (4) Qualitative

An appropriate chart would be:

- (5) Pie Chart
- (6) Bar Chart

Add the values of all correct answers.

Answer : _____

Round 1 2 3 4 5

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MA National Convention 2017**

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Answer : _____

Round 1 2 3 4 5

**#7 Probability & Statistics – Hustle
MA@ National Convention 2017**

In how many ways may 1st, 2nd, and 3rd places be awarded to a group of 6 competitors?

Answer : _____

Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

**#8 Probability & Statistics – Hustle
MA® National Convention 2017**

Find the probability when drawing a single card from a standard 52 card deck of cards (the card listed in the probability is the one drawn):

P(Queen | Face Card)

Answer : _____

Round 1 2 3 4 5

**#8 Probability & Statistics – Hustle
MA® National Convention 2017**

Find the probability when drawing a single card from a standard 52 card deck of cards (the card listed in the probability is the one drawn):

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Answer : _____

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**#9 Probability & Statistics – Hustle
MA® National Convention 2017**

Find the expected value of this distribution
as a decimal to the nearest tenth:

X	10	11	12	13
P(X)	(0.2)	(0.5)	(0.2)	(0.1)

Answer : _____

Round 1 2 3 4 5

**#9 Probability & Statistics – Hustle
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Round 1 2 3 4 5

**#10 Probability & Statistics – Hustle
MA National Convention 2017**

A penguin consistently fishes in the same pond with equally belly-filling results, meaning he is almost always successful at the pond! The penguin is an example of:

- A. High variability, low bias
- B. Low variability, low bias
- C. High variability, high bias
- D. Low variability, high bias

Give the correct letter.

Answer : _____

Round 1 2 3 4 5

**#10 Probability & Statistics – Hustle
MA National Convention 2017**

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- C. High variability, high bias
- D. Low variability, high bias

Give the correct letter.

Answer : _____

Round 1 2 3 4 5

**#11 Probability & Statistics – Hustle
MA@ National Convention 2017**

American AP Statistics classes have a national mean score of 3.5 with a standard deviation of 0.5 on a normal distribution. What score must you earn to be in the 84th percentile?

Answer : _____

Round 1 2 3 4 5

**#11 Probability & Statistics – Hustle
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Answer : _____

Round 1 2 3 4 5

**#12 Probability & Statistics - Hustle
MA National Convention 2017**

x	2014	2015	2016	2017	2018
y	22	18	14	9	3

$$\hat{y} = 9488.4 - 4.7x$$

Find the residual for $x = 2017$.

Answer : _____

Round 1 2 3 4 5

**#12 Probability & Statistics - Hustle
MA National Convention 2017**

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Answer : _____

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**#13 Probability & Statistics – Hustle
MA National Convention 2017**

Everett wants to take a sample of customers at Wal-Mart. If Everett selects every third customer for his sample, what type of random sampling is Everett using?

Answer : _____

Round 1 2 3 4 5

**#13 Probability & Statistics – Hustle
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Round 1 2 3 4 5

**#14 Probability & Statistics - Hustle
MA[®] National Convention 2017**

Given: $P(A)=0.5$, $P(B)=0.25$ and
 $P(A \text{ or } B) = 0.6$

Find: $P(A \text{ and } B)$

Answer : _____

Round 1 2 3 4 5

**#14 Probability & Statistics - Hustle
MA[®] National Convention 2017**

Given: $P(A)=0.5$, $P(B)=0.25$ and
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Answer : _____

Round 1 2 3 4 5

**#15 Probability & Statistics – Hustle
MA® National Convention 2017**

Find any outliers (using the 1.5IQR method)
from the following data set:
{1,7,20,217,2017}

Answer : _____

Round 1 2 3 4 5

**#15 Probability & Statistics – Hustle
MA® National Convention 2017**

Find any outliers (using the 1.5IQR method)
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{1,7,20,217,2017}

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Round 1 2 3 4 5

**#16 Probability & Statistics – Hustle
MA[©] National Convention 2017**

At The Mu School, 100 students take Calculus, 70 students take Algebra, and 40 students take Geometry. 10 students take Calculus and Algebra, 12 take Geometry and Calculus, and 22 take Algebra and Geometry. 4 students take all three classes, and every student takes at least one of these classes. Find the total number of students at The Mu School.

Answer : _____

Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

**#17 Probability & Statistics – Hustle
MA© National Convention 2017**

20% of all Gucci handbags are determined by the factory to be irregular. From a sample of 5 handbags, what is the probability that exactly 1 of the handbags are irregular? Give your answer as a simplified fraction.

Answer : _____

Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

**#18 Probability & Statistics – Hustle
MA® National Convention 2017**

Explanatory variables are also known as:

___ E ___ E __ variables.

Find the 6th missing letter.

Answer : _____

Round 1 2 3 4 5

**#18 Probability & Statistics – Hustle
MA® National Convention 2017**

Explanatory variables are also known as:

___ E ___ E __ variables.

Find the 6th missing letter.

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Round 1 2 3 4 5

**#19 Probability & Statistics – Hustle
MA[©] National Convention 2017**

The Mu School has an average verbal SAT score of 720 and a standard deviation of 36 points. Find the range of the middle 68% of the Mu School verbal SAT scores, given that the distribution is normal.

Answer : _____

Round 1 2 3 4 5

**#19 Probability & Statistics – Hustle
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Answer : _____

Round 1 2 3 4 5

**#20 Probability & Statistics – Hustle
MA@ National Convention 2017**

A sample data set has a coefficient of determination of 84%. Find the least possible correlation between the data. Answer must be exact.

Answer : _____

Round 1 2 3 4 5

**#20 Probability & Statistics – Hustle
MA@ National Convention 2017**

A sample data set has a coefficient of determination of 84%. Find the least possible correlation between the data. Answer must be exact.

Answer : _____

Round 1 2 3 4 5

**#20 Probability & Statistics – Hustle
MA@ National Convention 2017**

A sample data set has a coefficient of determination of 84%. Find the least possible correlation between the data. Answer must be exact.

Answer : _____

Round 1 2 3 4 5

**#20 Probability & Statistics – Hustle
MA@ National Convention 2017**

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Answer : _____

Round 1 2 3 4 5

**#21 Probability & Statistics – Hustle
MA National Convention 2017**

How many of the following could be examples of Continuous Random Variables?

- Age
- Height
- Weight
- Birth Year
- Number of Siblings
- Length of foot
- Number of shoes in closet

Answer : _____

Round 1 2 3 4 5

**#21 Probability & Statistics – Hustle
MA National Convention 2017**

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**#22 Probability & Statistics – Hustle
MA@ National Convention 2017**

How many degrees of freedom would a Chi-Square test have that examines the relationship between grade level {Freshman, Sophomore, Junior, Senior} and Gender {Male, Female}?

Answer : _____

Round 1 2 3 4 5

**#22 Probability & Statistics – Hustle
MA@ National Convention 2017**

How many degrees of freedom would a Chi-Square test have that examines the relationship between grade level {Freshman, Sophomore, Junior, Senior} and Gender {Male, Female}?

Answer : _____

Round 1 2 3 4 5

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**#23 Probability & Statistics – Hustle
MA National Convention 2017**

What number would be drawn as the center line of the box in the *box and whisker plot* from the following data?:
3, 4, 5, 7, 24, 25, 9, 40, 41

Answer : _____

Round 1 2 3 4 5

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MA National Convention 2017**

What number would be drawn as the center line of the box in the *box and whisker plot* from the following data?:
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Round 1 2 3 4 5

**#24 Probability & Statistics – Hustle
MA[®] National Convention 2017**

What is the expected value of the number of rolls of a standard 6-sided die to roll a “4”?

Answer : _____

Round 1 2 3 4 5

**#24 Probability & Statistics – Hustle
MA[®] National Convention 2017**

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Answer : _____

Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

**#24 Probability & Statistics – Hustle
MA[®] National Convention 2017**

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Round 1 2 3 4 5

**#25 Probability & Statistics – Hustle
MA@ National Convention 2017**

The probability that a man will be alive in 25 years is 0.4 and the probability that his wife will be alive in 25 years is 0.3. Assuming independence of events, find the probability that in 25 years at least one will be alive.

Answer : _____

Round 1 2 3 4 5

**#25 Probability & Statistics – Hustle
MA@ National Convention 2017**

The probability that a man will be alive in 25 years is 0.4 and the probability that his wife will be alive in 25 years is 0.3. Assuming independence of events, find the probability that in 25 years at least one will be alive.

Answer : _____

Round 1 2 3 4 5

**#25 Probability & Statistics – Hustle
MA@ National Convention 2017**

The probability that a man will be alive in 25 years is 0.4 and the probability that his wife will be alive in 25 years is 0.3. Assuming independence of events, find the probability that in 25 years at least one will be alive.

Answer : _____

Round 1 2 3 4 5

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MA@ National Convention 2017**

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Answer : _____

Round 1 2 3 4 5

