

#1 Prob/Stat – Hustle
MAO National Convention 2010

Find the mean of the following data set,
rounded to the nearest tenth:
{-10,-5,0,1,5,6,10,20,25}

Answer : _____

Round 1 2 3 4 5

#2 Prob/Stat – Hustle
MAO National Convention 2010

Find the probability of drawing two
consecutive hearts (without replacement) from
a standard deck of cards. Give your answer as a
simplified fraction.

Answer : _____

Round 1 2 3 4 5

#3 Prob/Stat – Hustle
MAO National Convention 2010

MAOHS has an average math SAT score of 750 and a
standard deviation of 100. Find the range of the
middle 95% of MAOHS math SAT scores, given that
the distribution is normal.

Answer : _____

Round 1 2 3 4 5

#4 Prob/Stat – Hustle
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The Chinstrap Penguin has eggs that are
normally distributed with a mean weight of 10
ounces and a standard deviation of 0.25
pounds. Using this information, what would
be the maximum weight of a penguin egg in
the 16th percentile in pounds? Round to the
nearest tenth of a pound.

Answer : _____

Round 1 2 3 4 5

#5 Prob/Stat – Hustle
MA@ National Convention 2010

Given the least-squares regression line:

$$\hat{y} = 12.5 - 40.6x$$

Find the residual of the data point (10,-300).

Answer : _____

Round 1 2 3 4 5

#6 Prob/Stat – Hustle
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A sample data set has a coefficient of determination of 96%. Find the greatest possible correlation between the data.

Answer must be exact.

Answer : _____

Round 1 2 3 4 5

#7 Prob/Stat – Hustle
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Brandi is using her favorite Statistical tool: her Random Digits Table. She loves the number 7, and has been lucky enough to find six 7's in a row on her table. What is the probability that Brandi will be super lucky and find a 7 as the next digit on her Random Digits Table? Give your answer rounded to the nearest tenth.

Answer : _____

Round 1 2 3 4 5

#8 Prob/Stat – Hustle
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How many of the following could be examples of Discrete Random Variables?

- *Age *Weight *Height
- *Unemployed Workers *Time of Sunset
- *Trophies won *Buses in the parking lot

Answer : _____

Round 1 2 3 4 5

#9 Prob/Stat – Hustle
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A random sample of 4 farming regions gave a sample mean of \$6.88 per 100 pounds of watermelon. Assume that σ is known to be \$1.92 per 100 pounds of watermelon. Give the 95% Confidence Interval, rounding values to the nearest whole number.

Answer : _____

Round 1 2 3 4 5

#10 Prob/Stat – Hustle
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Pyramid Lake is on an Indian Reservation in Nevada. The lake is famous for Cutthroat Trout. Suppose a friend tells you that the average length of the trout caught in Pyramid Lake is 19 inches. However, the Fisheries Association reported that of a sample of 64 trout, the mean length was 18.5 inches with estimated standard deviation $s = 3.2$ inches. Do these data indicate that the average length of a trout caught in Pyramid Lake is less than 19 inches? Use alpha level 0.05 and assume that all trout caught in Pyramid Lake are Cutthroat Trout.

Answer : _____

Round 1 2 3 4 5

#11 Prob/Stat – Hustle
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Brandi hypothesized that a standard 16 ounce bottle of Windex washed 1000 windows. She wants to run a Significance Test to determine if she is correct. Which type of error would she possibly be making in the following scenario: She does not buy the Windex because she finds from the data that a 16 ounce bottle of Windex does not wash 1000 windows.

Answer : _____

Round 1 2 3 4 5

#12 Prob/Stat – Hustle
MA@ National Convention 2010

In how many distinct permutations may the letters of the word AMERICA be arranged?

Answer : _____

Round 1 2 3 4 5

#13 Prob/Stat – Hustle
MA@ National Convention 2010

A bag contains 12 balls. 4 soccer balls, 5 basketballs, and the rest are tennis balls. What is the probability that a chosen ball from the bag will have a pentagon on it? Leave as a simplified fraction.

Answer : _____

Round 1 2 3 4 5

#15 Prob/Stat – Hustle
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Brian has the probability of getting a date of 30%. If Brian asks four girls out for Friday night, what is the probability, to the nearest percent, of Brian getting all four to say yes?

Answer : _____

Round 1 2 3 4 5

#14 Prob/Stat – Hustle
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Given the following two-way table, what are the degrees of freedom for a Chi-Square Test?

	Geom.	Stat	Calc	Algebra
10 th Gr	8	5	14	20
11 th Gr	4	7	9	13
12 th Gr	15	6	7	25
College	20	25	32	36

Answer : _____

Round 1 2 3 4 5

#16 Prob/Stat – Hustle
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For a normal distribution, the area to the left of a value is 0.84. The mean of the distribution is 12, and the value is 28. Find the standard deviation of the distribution.

Answer : _____

Round 1 2 3 4 5

#17 Prob/Stat – Hustle
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Find the standard error of the following distribution:

$\mu = 6.4$	$\sigma = 0.9$	$\alpha = 0.05$	$M = 7$
$n = 9$	$\Delta y = -0.8$	$\Delta x = -0.4$	$\Theta = 30^\circ$

Round to the nearest tenth.

Answer : _____

Round 1 2 3 4 5

#18 Prob/Stat – Hustle
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Determine which data points are outliers from the following data:

1, 14, 16, 18, 25, 35, 42

Answer : _____

Round 1 2 3 4 5

#19 Prob/Stat – Hustle
MA@ National Convention 2010

Determine which data point(s) would be drawn as the edges of the box from the *box and whisker plot* from the following data:

1, 14, 16, 18, 25, 35, 42

Answer : _____

Round 1 2 3 4 5

#20 Prob/Stat – Hustle
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40% of Americans watch American Idol. What is the standard deviation of the American Idol distribution if we sample 100 Americans? Leave as a simplified radical.

Answer : _____

Round 1 2 3 4 5

#21 Prob/Stat – Hustle
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If $P(A) = 0.4$ and $P(B) = 0.5$, assuming the events are independent, what is $P(A \text{ or } B)$?

Answer : _____

Round 1 2 3 4 5

#23 Prob/Stat – Hustle
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Give one point with integer coordinates that is on the Least Squares Regression Line of this data:

X	8	5	4	3
Y	3	-5	-6	4

Answer : _____

Round 1 2 3 4 5

#22 Prob/Stat – Hustle
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What is the expected value of the number of rolls of a die to roll a “7”?

Answer : _____

Round 1 2 3 4 5

#24 Prob/Stat – Hustle
MA@ National Convention 2010

Find the value of the Chi-Square Statistic, as a simplified fraction, for the following data if all entries are expected to be equal:

12	15	14
16	14	13

Answer : _____

Round 1 2 3 4 5

#25 Prob/Stat – Hustle
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Find the probability of the complement of the following event:

E = rolling a prime number on a standard die

Leave your answer as a simplified fraction.

Answer : _____

Round 1 2 3 4 5