#1 Prob/Stat – Hustle
National MAΘ 2008

Find the range R and median M of the following set of data:
8,12,10,6,6,0,20,24.

Find R/M as a simplified improper fraction.

Answer : _____

Round 1 2 3 4 5

#2 Prob/Stat – Hustle
National MAΘ 2008

American AP Statistics classes have a national mean SAT math score of 720 with a standard deviation of 20. What score must you earn to be in the 84th percentile?

Answer : _____

Round   1   2   3   4   5

#3 Prob/Stat – Hustle
National MAΘ 2008

MAO lottery costs $4 to play. The probability of winning is 2/5 with a payout of $12. What is the expected value of the game in dollars?

Answer : _____

Round   1   2   3   4   5

#4 Prob/Stat – Hustle
National MAΘ 2008

UCF Ultimate Frisbee team has a 4/5 probability
of winning. What is the probability of UCF
winning exactly 2 out of 3 games?

Answer : _____

Round   1   2   3   4   5

#5 Prob/Stat – Hustle
National MAΘ 2008

Find the 90th percentile of the following set of data:

1,1,1,1,1,4,4,4,4,4,5,5,5,6,7,7,7,10,10,12,12,12,
12,12,14,14,15,16,16,19

Answer : _____

Round   1   2   3   4   5

#6 Prob/Stat – Hustle
National MAΘ 2008

A probability distribution is formed by the lines:
$y = 0$, $x = 6$, and $y = \dfrac{x}{6}$. Find the probability of
$x \leq 3$. Leave your answer as a simplified fraction.

Answer : _____

Round   1   2   3   4   5

#6 Prob/Stat – Hustle
MAΘ National Convention 2007

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$y = 0$, $x = 6$, and $y = \dfrac{x}{6}$. Find the probability of
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Round   1   2   3   4   5

#7 Prob/Stat – Hustle
National MAΘ 2008

x	1998	1999	2000	2001	2002
y	20	18	15	14	13

$y' = -1.8x + 3616$

Find the residual for x = 2000. Round to the nearest whole number.

Answer : _____

Round   1   2   3   4   5

#8 Prob/Stat – Hustle
National MAΘ 2008

Find the z* critical value for a 95% Confidence
Interval. Give $|z*|$. Round to the nearest tenth.

Answer : _____

Round   1   2   3   4   5

#8 Prob/Stat – Hustle
National MAΘ 2008

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Round   1   2   3   4   5

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Round   1   2   3   4   5

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National MAΘ 2008

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Interval. Give $|z*|$. Round to the nearest tenth.

Answer : _____

Round   1   2   3   4   5

#9 Prob/Stat – Hustle
National MAΘ 2008

Give the margin of error of a sample with
n = 196 units with a critical t-value of 2.8
and s = 10.

Answer : _____

Round   1   2   3   4   5

#10 Prob/Stat – Hustle
National MAΘ 2008

In how many ways can a poker player draw 2 consecutive hearts from a standard deck of cards? Leave in $_nC_r$ form.

Answer : _____

Round   1   2   3   4   5

#11 Prob/Stat – Hustle
National MAΘ 2008

What is the probability that after flipping a coin
4 times, you will have at least 2 heads? Leave
your answer as a simplified fraction.

Answer : _____

Round   1   2   3   4   5

#12 Prob/Stat – Hustle
National MAΘ 2008

In a standard normal curve, what is the probability of falling in the area between -3 and -1 standard deviations? Leave your answer in percent, rounded to the nearest tenth of a percent.

Answer : _____

Round   1   2   3   4   5

#13 Prob/Stat – Hustle
National MAΘ 2008

In a large simple random sample of 10,000 students, the population proportion of students who like math is found to be 20%. What is the standard deviation of this population?

Answer : _____

Round   1   2   3   4   5

#14 Prob/Stat – Hustle
National MAΘ 2008

Find the number of distinct permutations of the word: STATISTICS.

Answer : _____

Round   1   2   3   4   5

#15 Prob/Stat – Hustle
National MAΘ 2008

A sample of statistics students are known to have a mean IQ of 110 with a standard deviation of 10. If their IQs all grow by a multiple of 2 minus 30 points, find the new mean and standard deviation. Give $\overline{X} + \sigma_X$.

Answer : _____

Round   1   2   3   4   5

#16 Prob/Stat – Hustle
National MAΘ 2008

A = maximum value of correlation
B = minimum value of probability
C = minimum value of correlation
D = -0.5
E = 0.5

Order A-E from greatest to least.

Answer : _____

Round   1   2   3   4   5

#17 Prob/Stat – Hustle
National MAΘ 2008

My dashboard is full of bobble heads. My Hulk
Hogan bobble head has a 1/5 chance of bobbling.
Mr. Kermit the Frog and Baloo Bear both have a
2/3 chance of bobbling. (Obviously they are
independent bobblers.) What is the probability
that Kermit is bobbling, but not the other two?
Leave your answer as a simplified fraction.

Answer : _____

Round   1   2   3   4   5

#18 Prob/Stat – Hustle
National MAΘ 2008

It is a known fact that 50% of marriages end in divorce. What is the probability to the nearest percent that a sample of 100 couples has a sample proportion of 55%?

Answer : _____

Round 1 2 3 4 5

#18 Prob/Stat – Hustle
National MAΘ 2008

It is a known fact that 50% of marriages end in divorce. What is the probability to the nearest percent that a sample of 100 couples has a sample proportion of 55%?

Answer : _____

Round 1 2 3 4 5

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#18 Prob/Stat – Hustle
National MAΘ 2008

It is a known fact that 50% of marriages end in divorce. What is the probability to the nearest percent that a sample of 100 couples has a sample proportion of 55%?

Answer : _____

Round 1 2 3 4 5

#19 Prob/Stat – Hustle
National MAΘ 2008

Use the 1.5*IQR rule to determine if there are any outliers in the following set of data. If there are outliers, list them. If there are not, write NONE.

-50,100,150,250,400

Answer : _____

Round   1   2   3   4   5

#20 Prob/Stat – Hustle
National MAΘ 2008

How many of the following variables are parameters?

1) $\sum_{i=1}^{n} X_i$
2) μ_X
3) σ_X^2
4) $\dfrac{x-\mu}{\sigma}$
5) θ
6) s

Answer : _____

Round   1   2   3   4   5

#21 Prob/Stat – Hustle
National MAΘ 2008

	Male	Female	Total
Smoke	40	64	104
Non-Smoke	68	36	104
Total	108	100	208

Find $P(non \mid female) = ?$
Give as a simplified fraction.

Answer : _____

Round   1   2   3   4   5

#22 Prob/Stat – Hustle
National MAΘ 2008

1. A correlation of 0.6 means that 60% of the values fall above the regression line.
2. If the correlation between two variables is 0, there can be no relationship between them.
3. For all the books in the Library at Lincoln High School, the correlation between the thickness of books and the number of pages is positive.
4. For all cars in the state of Alabama, the correlation between their fuel efficiency and their weight would be positive.
5. If the correlation between a group of people's height (in) and weight (lb) is 0.7, the correlation between their height (cm) and weight (kg) would still be 0.7.

Find the sum of all false statements.

Answer : _____

Round   1   2   3   4   5

#23 Prob/Stat – Hustle
National MAΘ 2008

Mean:

-5. Equal to Median
-2. Measure of Center
-1. Measure of Spread
0. Nonresistant
1. Used for Normal Curves
2. Expected Value
5. Resistant

Find the product of all true characteristics of a mean.

Answer : _____

Round   1   2   3   4   5

#24 Prob/Stat – Hustle
National MAΘ 2008

Which of these are NOT independent?

  A. A coin tossed 100 times (H/T).
  B. A thumbtack is flipped 100 times (Point Up/Point Down).
  C. Weather observed for 100 consecutive days (Rain/No Rain).
  D. A fair die is altered so that the side that normally shows two dots only shows one. The altered die is rolled 100 times (# spots)

Answer : _____

Round   1   2   3   4   5

#25 Prob/Stat – Hustle
National MAΘ 2008

	Male	Female	**Total**
Smoke	40	64	104
Non-Smoke	68	36	104
Total	108	100	208

Find $P(Male' | smokes)$

Leave answer as a simplified fraction.

Answer : _____

Round   1   2   3   4   5