

**#1 Probability & Statistics – Hustle
MA@ National Convention 2011**

A class has 15 students, 6 of whom are boys.
If 5 students make an A in the course, what
is the probability that at least one of those
students is a boy?

Answer : _____

Round 1 2 3 4 5

**#1 Probability & Statistics – Hustle
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**#2 Probability & Statistics – Hustle
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Barry Bonds' home run totals are, in increasing numerical order, 16, 19, 24, 25, 25, 33, 33, 34, 34, 37, 40, 42, 46, 49, and 73. Find the interquartile range (IQR) for this data.

Answer : _____

Round 1 2 3 4 5

**#2 Probability & Statistics – Hustle
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Barry Bonds' home run totals are, in increasing numerical order, 16, 19, 24, 25, 25, 33, 33, 34, 34, 37, 40, 42, 46, 49, and 73. Find the interquartile range (IQR) for this data.

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Answer : _____

Round 1 2 3 4 5

**#3 Probability & Statistics – Hustle
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Find the 80th percentile of the following set of numbers: 10, 10, 10, 10, 11, 11, 12, 12, 12, 12, 14, 14, 16, 16, 16, 17, 17, 18, 18, 20.

Answer : _____

Round 1 2 3 4 5

**#3 Probability & Statistics – Hustle
MA National Convention 2011**

Find the 80th percentile of the following set of numbers: 10, 10, 10, 10, 11, 11, 12, 12, 12, 12, 14, 14, 16, 16, 16, 17, 17, 18, 18, 20.

Answer : _____

Round 1 2 3 4 5

**#3 Probability & Statistics – Hustle
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Find the 80th percentile of the following set of numbers: 10, 10, 10, 10, 11, 11, 12, 12, 12, 12, 14, 14, 16, 16, 16, 17, 17, 18, 18, 20.

Answer : _____

Round 1 2 3 4 5

**#3 Probability & Statistics – Hustle
MA National Convention 2011**

Find the 80th percentile of the following set of numbers: 10, 10, 10, 10, 11, 11, 12, 12, 12, 12, 14, 14, 16, 16, 16, 17, 17, 18, 18, 20.

Answer : _____

Round 1 2 3 4 5

**#4 Probability & Statistics – Hustle
MA[©] National Convention 2011**

Find the probability of rolling a sum of 12 with three standard fair six-sided dice.

Answer : _____

Round 1 2 3 4 5

**#4 Probability & Statistics – Hustle
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Find the probability of rolling a sum of 12 with three standard fair six-sided dice.

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

**#5 Probability & Statistics – Hustle
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Variable X can take on values of 10, 20, 30, or 40, with respective probabilities of 0.3, 0.3, 0.2, and 0.2. Find the expected value of X .

Answer : _____

Round 1 2 3 4 5

**#5 Probability & Statistics – Hustle
MA© National Convention 2011**

Variable X can take on values of 10, 20, 30, or 40, with respective probabilities of 0.3, 0.3, 0.2, and 0.2. Find the expected value of X .

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Answer : _____

Round 1 2 3 4 5

**#6 Probability & Statistics – Hustle
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A bag contains 9 marbles, each of which is either red or black. When drawing exactly 2 marbles from the bag, the probability that both marbles are red is $\frac{1}{6}$. How many of the original 9 marbles are black?

Answer : _____

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**#7 Probability & Statistics – Hustle
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Give the margin of error of a sample size of a sample size of 225, a critical value t^* of 2.5, and a standard deviation of 20.

Answer : _____

Round 1 2 3 4 5

**#7 Probability & Statistics – Hustle
MA© National Convention 2011**

Give the margin of error of a sample size of a sample size of 225, a critical value t^* of 2.5, and a standard deviation of 20.

Answer : _____

Round 1 2 3 4 5

**#7 Probability & Statistics – Hustle
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Give the margin of error of a sample size of a sample size of 225, a critical value t^* of 2.5, and a standard deviation of 20.

Answer : _____

Round 1 2 3 4 5

**#7 Probability & Statistics – Hustle
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Give the margin of error of a sample size of a sample size of 225, a critical value t^* of 2.5, and a standard deviation of 20.

Answer : _____

Round 1 2 3 4 5

**#8 Probability & Statistics – Hustle
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Three companies are bidding on a contract. Company B is three times as likely to win the contract as company A, and company C is twice as likely as company B to win the contract. Find the probability company B wins the contract.

Answer : _____

Round 1 2 3 4 5

**#8 Probability & Statistics – Hustle
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**#9 Probability & Statistics – Hustle
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Find the probability of selecting a subset with exactly 1, 2, or 3 elements from among all non-empty subsets of the set $\{1,2,3,4,5,6\}$.

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

**#10 Probability & Statistics – Hustle
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What percent of the area under the standard normal curve lies between -2 and $+3$ standard deviations?

Answer : _____

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Round 1 2 3 4 5

**#11 Probability & Statistics – Hustle
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Which of the following are NOT part of the five-number summary?

first quartile, median, mean, range, third quartile, IQR, minimum, maximum

Answer : _____

Round 1 2 3 4 5

**#11 Probability & Statistics – Hustle
MA© National Convention 2011**

Which of the following are NOT part of the five-number summary?

first quartile, median, mean, range, third quartile, IQR, minimum, maximum

Answer : _____

Round 1 2 3 4 5

**#11 Probability & Statistics – Hustle
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Which of the following are NOT part of the five-number summary?

first quartile, median, mean, range, third quartile, IQR, minimum, maximum

Answer : _____

Round 1 2 3 4 5

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Which of the following are NOT part of the five-number summary?

first quartile, median, mean, range, third quartile, IQR, minimum, maximum

Answer : _____

Round 1 2 3 4 5

**#12 Probability & Statistics – Hustle
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Find the expected value of the product of the rolled faces when rolling two standard fair six-sided dice.

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

**#13 Probability & Statistics – Hustle
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In a density curve skewed to the right, which is greater: the mean or the median?

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

**#14 Probability & Statistics – Hustle
MA[©] National Convention 2011**

Elizabeth rolls a standard fair six-sided die repeatedly. What is the probability she first rolls a five on the fourth roll?

Answer : _____

Round 1 2 3 4 5

**#14 Probability & Statistics – Hustle
MA[©] National Convention 2011**

Elizabeth rolls a standard fair six-sided die repeatedly. What is the probability she first rolls a five on the fourth roll?

Answer : _____

Round 1 2 3 4 5

**#14 Probability & Statistics – Hustle
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Elizabeth rolls a standard fair six-sided die repeatedly. What is the probability she first rolls a five on the fourth roll?

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

**#15 Probability & Statistics – Hustle
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A family has six children. What is the probability that the family has four boys and two girls, given the oldest and youngest children are boys?

Answer : _____

Round 1 2 3 4 5

**#15 Probability & Statistics – Hustle
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A family has six children. What is the probability that the family has four boys and two girls, given the oldest and youngest children are boys?

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Answer : _____

Round 1 2 3 4 5

**#16 Probability & Statistics – Hustle
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Two people take turns flipping a fair coin; the first person to flip a tails wins. What is the probability that the first person wins?

Answer : _____

Round 1 2 3 4 5

**#16 Probability & Statistics – Hustle
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Two people take turns flipping a fair coin; the first person to flip a tails wins. What is the probability that the first person wins?

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**#17 Probability & Statistics – Hustle
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If we predict the score of an AP Statistics student on a particular test to be a 97, but the student actually scores a 95 on the same test, what is the residual?

Answer : _____

Round 1 2 3 4 5

**#17 Probability & Statistics – Hustle
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If we predict the score of an AP Statistics student on a particular test to be a 97, but the student actually scores a 95 on the same test, what is the residual?

Answer : _____

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**#18 Probability & Statistics – Hustle
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One of six contingency tables computed in a chi-square analysis had a computed p -value of $p = .01$. Using the Bonferroni method with a confidence level of $\alpha = .05$, should we reject the null hypothesis for this contingency table: yes or no?

Answer : _____

Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

**#19 Probability & Statistics – Hustle
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What is the probability that when drawing three cards from a standard 52-card deck, the three cards form a flush (all the same suit) but not also a straight (all three consecutive ranks)? An ace may count as the highest or the lowest card in a straight.

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 2011**

Find the z^* critical value for a 90% confidence interval (give the absolute value of z^* rounded to the nearest hundredth).

Answer : _____

Round 1 2 3 4 5

**#20 Probability & Statistics – Hustle
MA@ National Convention 2011**

Find the z^* critical value for a 90% confidence interval (give the absolute value of z^* rounded to the nearest hundredth).

Answer : _____

Round 1 2 3 4 5

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Round 1 2 3 4 5

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Answer : _____

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**#21 Probability & Statistics – Hustle
MA® National Convention 2011**

Given $H_0 : \mu = 20$ and $H_a : \mu < 20$, you conclude that the mean is not equal to 20 when it is actually 18. Have you made a correct decision or an error, and if you made an error, what type or error did you make?

Answer : _____

Round 1 2 3 4 5

**#21 Probability & Statistics – Hustle
MA® National Convention 2011**

Given $H_0 : \mu = 20$ and $H_a : \mu < 20$, you conclude that the mean is not equal to 20 when it is actually 18. Have you made a correct decision or an error, and if you made an error, what type or error did you make?

Answer : _____

Round 1 2 3 4 5

**#21 Probability & Statistics – Hustle
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Given $H_0 : \mu = 20$ and $H_a : \mu < 20$, you conclude that the mean is not equal to 20 when it is actually 18. Have you made a correct decision or an error, and if you made an error, what type or error did you make?

Answer : _____

Round 1 2 3 4 5

**#21 Probability & Statistics – Hustle
MA® National Convention 2011**

Given $H_0 : \mu = 20$ and $H_a : \mu < 20$, you conclude that the mean is not equal to 20 when it is actually 18. Have you made a correct decision or an error, and if you made an error, what type or error did you make?

Answer : _____

Round 1 2 3 4 5

**#22 Probability & Statistics – Hustle
MA[©] National Convention 2011**

The probability a certain type of light bulb will last at least 100 hours is $\frac{1}{3}$, and the probability it will last at least 150 hours is $\frac{1}{5}$. What is the probability the bulb will last at least 150 hours, given that it has already lasted 100 hours?

Answer : _____

Round 1 2 3 4 5

**#22 Probability & Statistics – Hustle
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**#23 Probability & Statistics – Hustle
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Which of these is not possible?

- A) The five-number summary has 3 identical values.
- B) The standard deviation is greater than the mean.
- C) The IQR is equal to the range.
- D) All are possible.

Answer : _____

Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

**#24 Probability & Statistics – Hustle
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Tony is rolling fair tetrahedral dice with faces numbered 1, 2, 3, and 4. What is the minimum number of dice he must roll in order for the probability that he rolls at least two 2s to be at least 50%?

Answer : _____

Round 1 2 3 4 5

**#24 Probability & Statistics – Hustle
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Tony is rolling fair tetrahedral dice with faces numbered 1, 2, 3, and 4. What is the minimum number of dice he must roll in order for the probability that he rolls at least two 2s to be at least 50%?

Answer : _____

Round 1 2 3 4 5

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Answer : _____

Round 1 2 3 4 5

**#25 Probability & Statistics – Hustle
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The height of males is normally distributed with a mean of 69 inches and a standard deviation of 2.5 inches. What is the probability that a male is 74 inches or taller? Write your answer as a fraction.

Answer : _____

Round 1 2 3 4 5

**#25 Probability & Statistics – Hustle
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The height of males is normally distributed with a mean of 69 inches and a standard deviation of 2.5 inches. What is the probability that a male is 74 inches or taller? Write your answer as a fraction.

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