**#4 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

If I flip a coin 10 times in a row, what is the probability that I will get heads at least 8 times?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#3 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

Veeshal is given the following information about two sets of data:

r = .5, Sy = 6, Sx = 4, = 75, = 80

Using this information, find the equation of the line of best fit in slope intercept form.

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#2 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

A mother has 10 identical toys for her 3 babies. If she is going to give each toy to exactly one of the babies, in how many ways can she allocate these toys?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#1 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

Find the interquartile range of the following set of data: 19, 31, 14, 55, 13, 45, 5, 22, 57, 33.

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#8 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

StatisticsMan meets a lovely lady named Miss. Null Hypothesis. (She goes by HO for short.) She asks him out onto a date, but StatisticsMan believes she is not being truthful about her request Thus, he rejects her. However, Miss HO was telling the truth, and StatisticsMan incorrectly rejected her. What type of error did StatisticsMan make?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#7 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

Suppose you need to conduct a chi-square test for the following set of data:

|  |  |  |
| --- | --- | --- |
|  | Observed | Expected |
| Type A | 12 | 10 |
| Type B | 15 | 12 |
| Type C | 8 | 15 |
| Type D | 18 | 16 |

Find

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#6 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

Given a standard deck of cards, with all face cards removed (including aces), what is the probability that you will pull two cards whose numbers have a product greater than 12?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#5 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

Using the empirical rule, what's the probability of being between 1 to 2 standard deviations of the mean?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#12 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

According to the infamous ‘birthday problem’, how many people must be in the same room in order to reach a 50% probability that two of them share the same birthday (excluding Feb. 29th) ?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#11 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

How many ways can you arrange 8 charms on a bracelet?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#10 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

I have lots of balls in an urn. Ten of the balls are red, 5 are blue and 7 are yellow. If I pull out two, one after the other, what are the odds that both are blue?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#9 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

What is the z-score for an observation of 170 when µ=125 and σ = 15?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#16 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

What is the absolute difference between the mode of the following data and its algebraic mean?

x+7,x+4,x+3,x+6,x-1,x+4,x-10

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#15 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

Find the expected value:

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| X | 3 | 6 | 9 | 12 |
| P(x) | 0.1 | 0.5 | 0.3 | 0.1 |

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#14 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

Given the complex set of numbers, you are asked to choose ANY number with a positive real part less than 5 and a negative imaginary part greater than -5i. What is the probability that your number also has a magnitude less than 5?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#13 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

Find the standard deviation for the following set of data: 2,6,13,17,22.

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#17 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

You are given the following problem:

Suppose you're on a game show, and you're given the choice of three doors: Behind one door is a car; behind the others, goats. You pick a door, say No. 1, and the host, who knows what's behind the doors, opens another door, say No. 3, which has a goat. He then says to you, "Do you want to pick door No. 2?" Is it to your advantage to switch your choice?

What is the name of the host of the famous game show from which this problem came?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#20 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

Find the sum of the mean, median, and mode of the following set of data: 3,8,2,5,3,6,7,7,9,3

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#19 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

Peetah received grades of 69,78,82,86,and 95 on his first 5 statistics tests. What does he need on his next test to get an average grade of 85?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#18 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

There are 12 students in a particular math class. During lecture, every student sits in a class room with seats in a 4 by 3 matrix. In how many cays can ALL of the unique students be arranged such that three particularly close friends always sit together in either a vertical, diagonal or horizontal row.

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#24 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

Find the total chi-squared value of the following:

|  |  |
| --- | --- |
| Observed Value | Expected Value |
| 15 | 12 |
| 20 | 25 |
| 13 | 10 |

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#23 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

Find the arithmetic mean of the following set of data: 5,9,13,14,19,22,31,45,55,57

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#22 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

In how many ways can 1st, 2nd, and 3rd place be rewarded to 52 competitors?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#21 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

The total area under a normal distribution curve is equal to what?

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**

**#25 Statistics & Probability – Hustle**

**FAMAT State Convention 2012**

S= {20,12,X}. Find X such that standard deviation is minimized.

**School:**

**\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Answer:**