Statistics Team Question #1 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

Given the following set of data, 16 8 20 -5 17 7

A = the mean

B = the median

C = the first quartile

D = the third quartile

Statistics Team Question #2 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

Suppose events *X* and *Y* are independent, the probability of *X* is 0.5, and the probability of *Y* is 0.2.

A = the probability that both *X* and *Y* occur,

B = the probability that either *X* or *Y* occur, and

C = the probability that *X* occurs given *Y*.

D= the Mascot for Middleton

Statistics Team Question #3 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

Given the set of ordered pairs below and its linear model in $y = a + bx$ form.

(0, 14) (1, 11) (2, 8) (3, 5) (4, 2)

A = a in the equation above

B = b in the equation above

C = the correlation coefficient

D = coefficient of determination.

Statistics Team Question #4 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

A coin is flipped until a head appears.

Let *A* = the average number of flips until heads appears,

B = the probability that it takes more than 3 flips until a head appears

C = the probability that the third flip is the first time a head appears

D= The Lead Coach for the Middleton Mu Alpha Theta

Statistics Team Question #5 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

Assume the scores on the 2002 Mathematics SAT are normally distributed with a mean of 550 and a standard deviation of 110. Using the Empirical Rule,

A = the score of a student at the 95^{th} percentile

B = the score of a student at the 16^{th} percentile

C = the score of a student at the 50^{th} percentile.

D = **Name the President or a Vice President of Florida Association of Mu Alpha Theta.**

Statistics Team Question #6 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

The table summarizes the political affiliations of 40 adults.

	Female	**Male**
Democrat	6	8
Republican	4	8
Independent	10	4

Suppose one of these adults is randomly selected.
A = the probability that the adult is a Republican
B = the probability that the adult is female
C = the probability that the adult is a female Republican.

Now suppose one of these female adults is randomly selected.
D = the probability that she is a Republican.

Statistics Team Question #7 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

Random variable ***X*** has a mean of 10 and a standard deviation of 3.

Random variable ***Y*** has a mean of 20 and a standard deviation of 4.

The correlation between ***X*** and ***Y*** is –1.

Find the exact value of the standard deviation of ***X + Y***.

Statistics Team Question #8 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

A bivariate set of data gives a linear regression equation of $\hat{y} = 15 + 40x$.

The point (3.5, *y*) has a residual of –60. Find *y*.

Statistics Team Question #9 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

An experiment using 60 college students was conducted to explore the nature of the relationship between a person's heart rate (measured in beats per minute) and the frequency at which that person stepped up and down on steps of various heights. There were three rates of stepping and two different step heights used. Each subject was randomly assigned to perform the activity at one of the three stepping rates and at one of the two possible heights for three minutes. Heart rates were measured at the end of the 3-minute period.

Let *A* = the number of experimental units

B = the number of factors

C = the number of treatment groups needed.

D = The month the 2007 Florida State Convention will be held.

Statistics Team Question #10 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

The power for a hypothesis test run at a 5% significance level was 0.85.

A = the probability of a Type I error

B = the probability of a Type II error.

Statistics Team Question #11 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

Kim is running for class president at her very large high school. Brian, the manager of her campaign, wants to know Kim's chance of winning. He randomly surveys 100 students and finds that 80 will vote for Kim.

Using a critical value of 2, **find the confidence interval** for the percent of students that will vote for Kim.

Statistics Team Question #12 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

A die is rolled 240 times with the following results.

Face	1	2	3	4	5	6
Frequency	50	60	40	40	20	30

A Goodness of Fit test is conducted to assess the fairness of the die.
A = the degrees of freedom for this test,

B = the expected number of 2's

C = the X^2 component for 5's.

D = YOUR school's Mascot is _____ (Hey, it's an easy 4 points right?)

Statistics Team Question #13 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

A vaccine for use against a dangerous virus has been developed. You have 8 available rats (named below), which you will expose to the virus. You decide to use 4 rats as a control group by not giving them the vaccine. You will treat the other 4 rats with the vaccine.

Start at the beginning of the list of random digits.

Random digits – 81868 71035 09001 43367 49497 54580 81507 27102

Use the labels attached to the rats.

Rats - 1. Andrew 2. Beth 3. Chi Chi 4. David
5. Ernie 6. Floyd 7. Grant 8. Hannah

Write the names of the rats assigned to the treatment group in the order in which they were selected.

Statistics Team Question #14 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

A discrete random variable X takes four values and has the probability distribution shown below where A and B are constants. The expected value of X is 1.4.

X	0	1	2	3
$P(X)$	0.4	A	B	$A + B$

Find the exact value of $(A)(B)$.

Statistics Team Question #15 Florida Invitational Middleton TIGERS Feb 24, 2007
NO CALCULATOR

The following are statistics from a set of bivariate data:

$\bar{x} = 90,\ s_x = 5,\ \bar{y} = 42,\ s_y = 15,\ r = -0.2$

A = the slope of the least squares regression line.

B = the y-intercept of the least squares regression line.