

A STATISTICAL Study

DIVISION 2
CATEGORY 8
EXHIBIT 5

~~728~~

A STATISTICAL STUDY

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By # 728

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Table of Contents

	no	Subject	Page
I	1	INTRODUCTION	1
	2	MATERIALS	2
	3	Purpose	3
	4	Procedure	4
	5	Results	6
	6	GRAPHS	7
II	7	CONCLUSIONS	11
	8	SOME OBSERVATIONS	13
	9	footnotes	15

A STATISTICAL STUDY (ANALYSIS)

Introduction: Statistics sound like they are uncommon and used only by mathematicians. Really, they are used by most of us in everyday life.

For instance, if the baseball season just opened last week and the Phillies won 4 and lost 2, we might say in 20 weeks they should have a record of 80 wins and 40 losses. This is using statistics, taking a sample. In the sample they won $66\frac{2}{3}\%$ of their games and lost $33\frac{1}{3}\%$, therefore, they should be $66\frac{2}{3}\%$ of games won and $33\frac{1}{3}\%$ lost. This method of "sampling" is what I used to reach my conclusion.

Materials: Generally speaking, there was one piece of equipment used, the questionnaire. I also had the help of 150+ students of the 7th and 8th grades.

I would like to thank all teachers and sisters of grades 7 & 8, also the students for their cooperation.

Purpose: My mother has a job as an interviewer for the U.S. department of H.E.W. A random sampling is taken, these she interviews, from this the government is supposedly can tell what the total answers would be.

I decided to make a minor test to see how well this worked. By recording the answers of my sample I should be able to say or predict the total outcome.

Procedure: I distributed questionnaires to grades 7 & 8 in early February. When they were returned I hesitated in recording the answers thinking it wouldn't take long ~~too~~ do so.

When I started I gave each questionnaire a letter-number combination. Using the letters A-Z & AE contained in a game I own and a single die. The symbol AE was used because there were APPROX. 162 questionnaires, $26^{\text{letters in alphabet}} \times 6^{\text{nos. on die}} = 156$ which is 6 less than 162 an extra 6 combinations were needed. This accounts for the AE symbol.

The letters were placed in a box, closing my eyes I shook the die and pick a letter simultaneously.

this combination in turn was copied down and later picked from the pile of 'interviews'. Twenty were picked for my sampling. The answers were recorded and graphed according to percent of total (20).
(see graphs)

The answers for all interviews should be similar, in percent of total, to the sampling. As I found it would be almost impossible to include all questions many were not used (see sample of interview).

As total nos. of answers were recorded I used only answers recorded in sample eg. for favourite colour Blue, orange, Red, Purple, ^{green} were found in the sample, therefore any other answers for that question ~~or~~ in the total were considered 'other'. This was done for all questions used.

P.S. IF ALL ANSWERS FOR ALL
QUESTIONS WERE USED APPROX. 7,614 TO RECORD 5

ENGINEERING CALCULATIONS

FMC CORPORATION AMERICAN VISCOSE DIVISION	DATE 2/17	PLANT ██████████	SHEET NO. 1 OF 4
	DESCRIPTION OF JOB STATISTICAL ANALYSIS		DEPARTMENT STATISTICS
SUBJECT 3. 2, 3, 14		JOB ORDER NO. 2	
		CALCULATIONS BY # 728	

160⁺
Question 2
color of Hair

160⁺
Que. 3
color of eyes

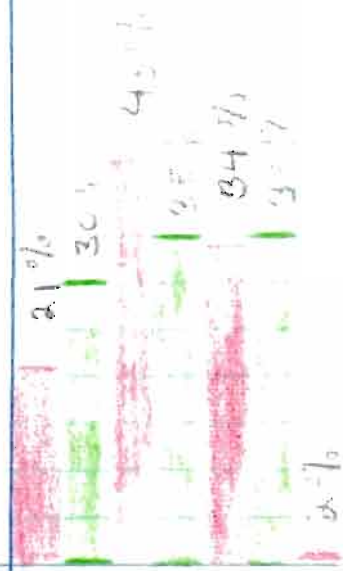
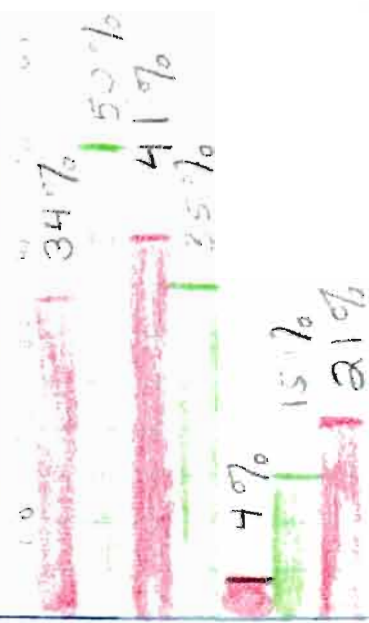
159⁺
Que. 14
what kind of
shoe wear?

● TOTAL*

● SAMPLE

● TOTAL* ● SAMPLE

● TOTAL* ● SAMPLE



Brown
Blue and Black
Blond
Black
Red
Other

Blue
Blue
Brown
Brown
Brown
Brown
other
other
?
?

UPLAND
UPLAND
EDGE
EDGE
PRov.
PRov.
Other

ENGINEERING CALCULATIONS

FMC CORPORATION AMERICAN VISCOSE DIVISION	DATE 1/17	PLANT [REDACTED]	SHEET NO. 2 OF 4
DESCRIPTION OF JOB A STATISTICAL ANALYSIS		DEPARTMENT STATISTICS	JOB ORDER NO. 2
SUBJECT Recount Ques. 12, 13, 14			CALCULATIONS BY # 728

161^T
 Quest. 12
 Who favored in S.B.

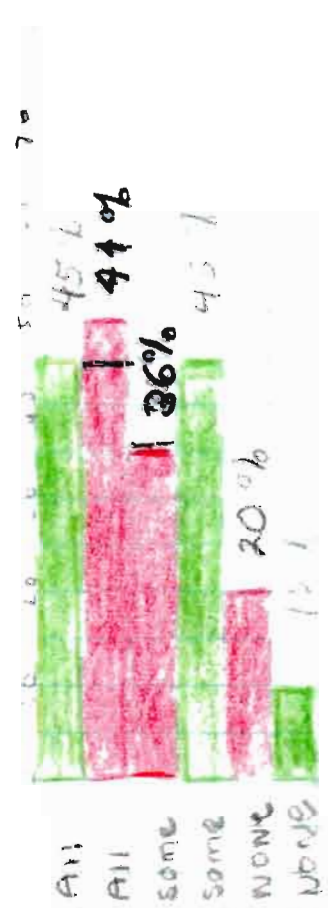
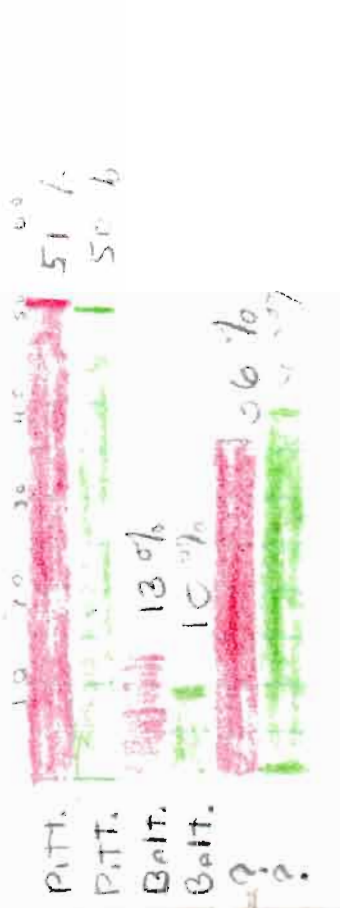
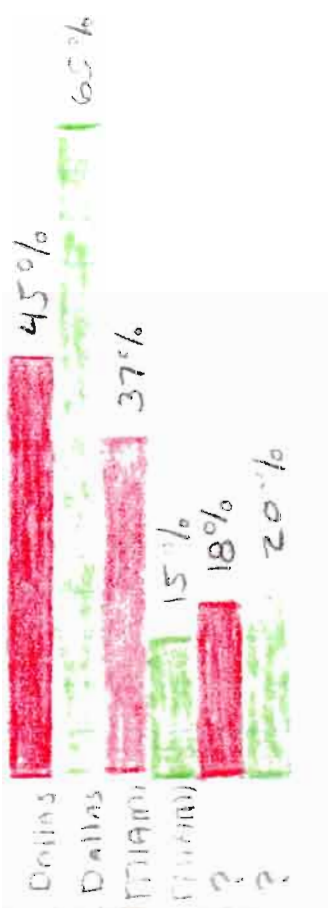
151^T
 Ques. 13
 Fav. in World Series

Quest. 43
 Did you watch [unclear]?

TOTAL* SAMP.

TOTAL* SAMP.

TOTAL* SAMP.



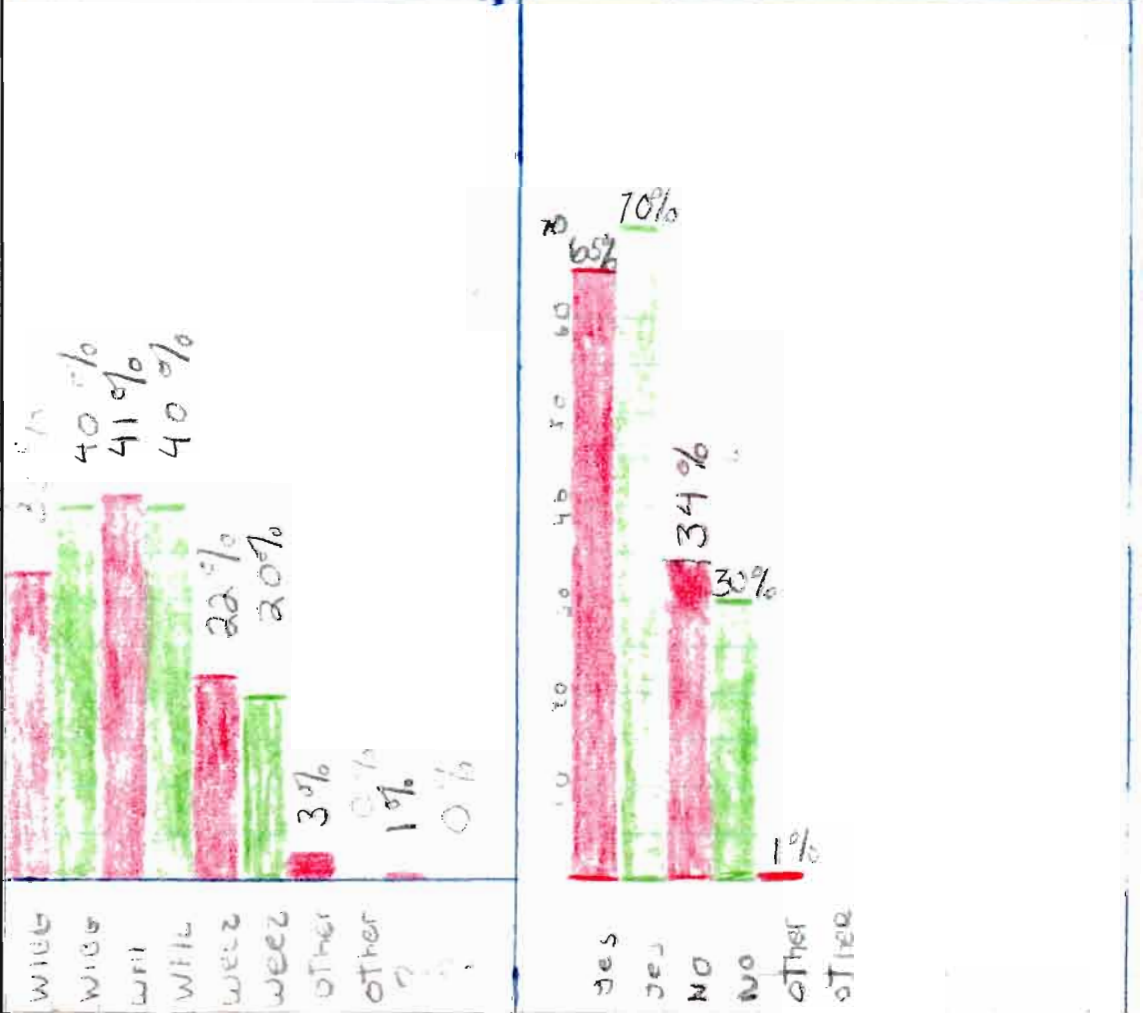
ENGINEERING CALCULATIONS

FMC CORPORATION AMERICAN VISCOSE DIVISION		DATE 2/17	PLANT ██████████	SHEET NO. 3 OF 4
DESCRIPTION OF JOB A STATISTICAL ANALYSIS		DEPARTMENT TOTAL	JOB ORDER NO. 2	
SUBJECT Ques. 24, 31			CALCULATIONS BY #723	

164⁺
 Ques 24
 FAVORITE RADIO STATION

163⁺
 Ques 31
 DO YOU HAVE ANY PETS?

Sampling TOTAL* TOTAL* SAMPLING



ENGINEERING CALCULATIONS

FMC CORPORATION AMERICAN VISCOSE DIVISION	DATE 2/1/77	PLANT ██████████	SHEET NO. 4 OF 4
DESCRIPTION OF JOB A STATISTICAL ANALYSIS	DEPARTMENT STATISTICS	JOB ORDER NO. 2	
SUBJECT QUES. 40, 41, 41		CALCULATIONS BY # 720	

165⁺

Ques. #40 Should DIV
WHR be STOPPED?

TOTAL * SAMPLING

168⁺

Ques 41
IS NIXON DOING A
Good JOB?

TOTAL * SAMPLING

162⁺

Ques 44⁺
Do you Get an
Allowance

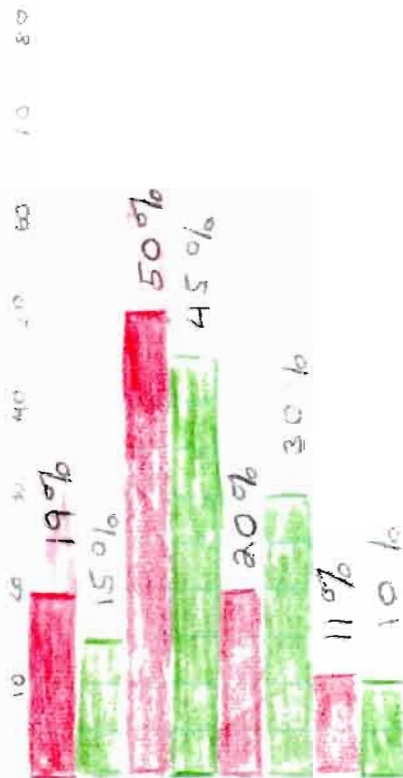
TOTAL * SAMPLING

92%
95%



2%
0%
1%
5%
5%

yes
no
no
no
no
no
no
no



yes
no
no
maybe
I don't know
?



yes
no
no
no
no allowance

P
Part

2

Conclusions: Since this was the first time I have performed this type of experiment before, I found I added many unnecessary. In addition to this, I found with lack of time available to me (my fault) I could perform the experiment more thoroughly if I did only a few questions.

The following are conclusions concerning results:

A sampling is a good method but did not work completely accurately because the method of taking my sample should have been; I would get every 6th, 10th, or 12th etc. to fill out a questionnaire. I would record these answers, work out percentages, then have everyone else fill them out

b) When doing total, sampling must be included for a more accurate outcome.

c) Sampling p should have been more of the total; out of ^{APPROX.} 162, 20 were in sample or 12.3%. It would recommend about 18.5% or 30 out of 162.

Some observations:

A) More people were happy over the World Series than sad.

B) There were almost 3 times as many people with no favorite in the world series than were for Baltimore.

C) By Popularity the three top radio stations are

1 ST	WFIL	56	on your dial
2 ND	WIBG	99	" " "
3 RD	WE-EZ	16	" " "

d) If the war isn't stopped soon 92% of ~~the~~ 7th & 8th graders may be mad.

e) For every 100 students 19 feel Nixon is doing a great job, 50 feel he "ain't" doing so hot.

f) This science project gave me something to do besides listening records and sleeping for the month I'm grounded for.

Footnotes:

A) \dagger -- total answers including sampling

B) * -- Percentages include sampling

Sample

Cops

728

Crossed out
ones NOT
used

PLEASE ANSWER ALL QUESTIONS POSSIBLE

- ~~1~~ Birthdate _____
- ~~2~~ Color of Hair _____
- ~~3~~ Color of Eyes _____
- ~~4~~ Favorite Color _____
- ~~5~~ Favorite Ice Creamball Team _____
- ~~6~~ Favorite Pro Baseball Team _____
- ~~7~~ Favorite sport to watch _____
- ~~8~~ Favorite sport to play _____
- ~~9~~ Height (nearest inch) _____
- ~~10~~ Weight (nearest 5 lbs.) _____
- ~~11~~ Favorite subject _____
(Excluding Art, Recess, Lunch, and Music)
- ~~12~~ Who did you favor in Superbowl? _____
- ~~13~~ Who did you favor in World Series? _____
- ~~14~~ What line do you walk in? _____
- ~~15~~ Number of brothers _____
- ~~16~~ Number of sisters _____
- ~~17~~ Number of people in family _____
- ~~18~~ House Number (even or odd) _____
- ~~19~~ Pick one of these numbers 2, 3, 9, 7, 23, 25, 28, 33, 36, 39,
50, 99 _____
- ~~20~~ Favorite Flavor Soda _____
- ~~21~~ Favorite Flavor Ice Cream _____
- ~~22~~ Favorite Candy _____
- ~~23~~ Favorite Song _____



Wie heißt die Funktion?

Die Funktion f ist durch $f(x) = 2x^2 + 5x - 7$ gegeben.

Wie hoch ist der Funktionswert $f(3)$?

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Wie hoch ist der Funktionswert $f(3)$?

Die Funktion

Die Funktion f ist durch $f(x) = 2x^2 + 5x - 7$ gegeben.

Wie hoch ist der Funktionswert $f(3)$?

$$f(x) = 2x^2 + 5x - 7$$

$$f(3) = 2 \cdot 3^2 + 5 \cdot 3 - 7$$

$$f(3) = 2 \cdot 9 + 15 - 7$$



40. Should the Vietnam War be stopped? _____

41. Is Nixon doing a good job? _____

42. Did you watch the Superbowl? _____
(All or Some or None)

43. Using the letters - R, L, I, P, F - make a word of at least 3 letters (letters can be used only once).

44. Do you get an allowance? _____ If Yes - How Much? _____

Grade _____ Male _____

(Check One)

Room _____ Female _____

Thank you for your assistance. Fold over so your answers will be Confidential.

I will give you results at a later date