



# Grand Challenge Number Two!

By Ed Meyer

A gambler in the 1700s knew that the probability of rolling exactly four different numbers with six die was very close to 50%.

Examples of a roll of six die that contains four different numbers are 1-1-1-3-4-6, 2-3-3-4-4-6, and 2-2-3-5-5-6. Another way to state the condition is that two of the six possible numbers don't appear.

The gambler knew that the probability of exactly four different number was very close to 50% because he rolled six dice thousands of times and recorded the results with tally marks. He wanted to know if the probability was exactly 50%, in which case a gambler wouldn't have an edge with an even money bet, or if the results were not 50-50. If the results were not 50-50 and he knew which way it was, he could use this knowledge to his advantage.

The story is that is he went to the famous mathematicians of his day, and they couldn't solve it, but this may be apocryphal, and even if the question was posed to Bernoulli, we wonder how much interest he had in calculating probabilities involving dice to aid a gambler.

Whatever the case, the problem itself is a rich one and the probability is indeed very close to 50%, as the gambler suspected.

A typical math teacher might think that the student needs to be trained about probability to solve this problem. This is incorrect. In fact, in my experience, students trained in the laws of probability have a much harder time with this problem than those who have not. I imagine that the reason is simply that students trained in probability tend to use formulas in place of thinking whereas students without the formulas have no option but to think.

One of my former students, Dr. Sean Hoehn ridiculed the technique of plugging numbers into

According to HHS.gov, the Health and Human Services of the United States Government...

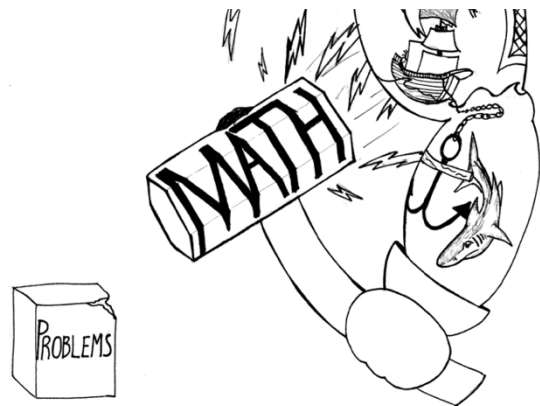
"As children develop, the brain trims down the extra growth based on the parts of the brain the adolescent actively uses."

"The brain connections that are used are strengthened by wrapping a special fatty tissue around the cells to protect and insulate them."

"The brain connections that are not used are pruned."

*Difficultas evigilat ingenio*

formulas with the hope of getting the answer by calling it, "Swinging the Math Hammer." Another student, Jake Harders illustrated it for publication in the book, "Probably a Good Book."



The only knowledge that is needed to solve the problem is that each die is independent, and each has a probability of one-sixth to land on any of the six numbers. That is it. The rest is a mighty struggle that will develop mental strength, mental stamina, and a healthy, active mind.





# Knight – Joker -Spy Problems

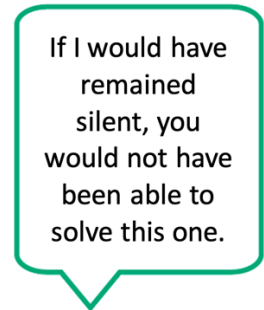
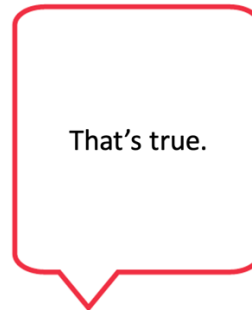
By Ed Meyer

There is one Knight, one Joker and one Spy among Mr. Blue, Mr. Red, and Mr. Green. The Knight can't lie, the Joker can't tell the truth and the Spy can say anything. Identify all three. The solution is unique.

The first is not that challenging, but the second requires some thought.

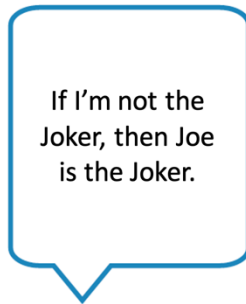
For more problems, follow Ed on X.

[https://twitter.com/Gedanken\\_Inst/](https://twitter.com/Gedanken_Inst/)



## The logical IF-THEN Statement

The logical IF-THEN statement is true only if the IF part is true and the THEN part is false. If the THEN part is true, the entire statement is true irrespective of the veracity of the IF part. If the IF part is false, the entire statement is logically true irrespective of the veracity of the THEN part. For example, "if the Earth were flat, ships could sail off the edge," is a logically true statement.





# Quoteacrostic of the Month

By Ed Meyer

**Instructions:** Fill in the words at the bottom from the clues. Then write those letters in the grid at the top to reveal an appropriate quote. Black squares indicate the end of a word, and punctuation has been removed. When you're done, the first letters of the answers to the clues, from top to bottom, will be the author of the quote.

## QUOTE

1L	2F		3K	4I	5L		6M	7F	8B	9A	10C		11I	12G	13M
	14E	15I	16F	17B		18A	19L	20J	21C		22H	23I	24E		
25I	26K	27D	28L		29E	30A	31H	32J							
33C	34I	35D	36B	37A	38I	39G	40M		41D	42A	43G	44F			
45A	46E	47J		48D	49M	50G	51H		52I	53C					
54F	55B	56L	57E	58B		59E	60M	61K		62D	63F	64K	65G	66M	

## CLUES

A. Rich and minerally

9 30 37 18 42 45

B. Word after gas, night, and high

8 55 36 17 58

C. Chooses

53 33 21 10

D. Santa's pole

27 35 62 41 48

E. Forms words without speaking

29 46 24 59 57 14

F. Remove shackles

7 44 16 63 2 54

G. Start the volleyball match

39 43 12 50 65

H. Anthem lyricist

31 51 22

I. Ask for assistance

34 38 11 25 4 23 15 52

J. Dubai location

47 20 32

K. Tardy

64 26 3 61

L. The black one of fifteen

5 1 56 19 28

M. Scissors

40 60 13 49 6 66

