

Math and Books PUZZLE SOLUTIONS

Here are the answers to the puzzles from last time.

puzzle #1

Ramin, reading a novel, suddenly exclaims, "Five pages have been torn out of my book!"

Upon hearing this, Liana responds, "I know that the sum of the page numbers missing is odd."

Having never touched Ramin's book, how does Liana know this?

ANSWER TO PUZZLE 1:

Each sheet of paper from a book has two page numbers printed on it: one on each face. In fact, those two numbers are consecutive: 1 and 2, or 131 and 132, or 399 and 400, say. So each sheet of paper has one odd page number and one even page number.

The sum of page numbers on five sheets of pages torn from a book is thus a sum of five odd numbers and five even numbers. That sum is sure to be odd!



Dr. James Tanton

The NMF Weekly is written by mathematician Dr. James Tanton as a resource for friends and fans of the 2021 National Math Festival. Learn more at globalmathproject.org/nmf-weekly & nationalmathfestival.org

puzzle #2

Find a novel and open it at a random page.

Choose any word in the first paragraph of that page and do the same "counting game" as for Twinkle Twinkle: count how many letters are in your chosen word, count that many words forward, and keep doing this until you are about to go off the page. Take note of the final word at the bottom of the page you land on.

Now choose a second starting word from the first paragraph and work your way down to the bottom of the page. Do it again with a third starting word, and again with a fourth!

I bet you land on the same final word at the bottom of the page each time!

Can you explain why?

ANSWER TO PUZZLE 2:

This is a tough puzzle and it may have been unfair of me to ask it. (Sorry!) Perhaps the best way for me to answer it is to suggest you look at this video I made a while back explaining the phenomenon.

<https://youtu.be/wNrIQk43pMs>