

Inquiry STEMs From Mystery!

Short Mystery You Solve with Math...

Toss-Up



"These cookies must be for me," Dylan said.

"No, they must be for me," Isaac said.

Dylan and Isaac's travel basketball team had stopped for dinner at Dylan's house after a game. Dylan's mother had made a fantastic dinner, and everyone, except Dylan and Isaac, was too full for the cookies Dylan's father had baked.

Isaac said, "Let's toss for them. Cookie by cookie." He got out a quarter. "I'll toss, you call," he said.

"Heads," Dylan said.

It came up tails. Isaac ate a cookie.

"Heads," Dylan called on the second toss.

Tails again. Isaac ate another cookie.

"Heads," Dylan called again.

It came up tails again. Isaac ate a third cookie.

By now the other boys were snickering. "Heads again," Dylan said.

Tails once more.

"Maybe you should start calling tails," Isaac suggested. "I'm getting pretty full, eating all these cookies."

"No, I'll stick with heads," Dylan said. "I mean, what are the odds that it will come up tails again?"

"I can tell you the odds exactly," Isaac said.

Dylan looked surprised. "How did you figure it out that fast?" he asked.



Mystery No. 12 (page 39) from
One Minute Mysteries: 65 Short Mysteries You Solve With Math!

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Answer to...

Toss-Up



“The chances are even that on any coin toss, heads or tails will come up,” Isaac said. “It doesn’t matter what happened on previous tosses. The odds are still 50-50 that it will come up one way or the other the next time.”

“By the way,” Isaac added, “it’s easy to figure out the odds of a coin toss coming up one way or the other five times in a row. You double the result each time. The chance of a coin coming up one way or the other is 1 in 2 the first toss. The chance of it coming up a certain way each time is 1 in 4 for two tosses, 1 in 8 for three tosses, 1 in 16 for four tosses, and 1 in 32 for five tosses. But that’s just the odds against that happening in general. On any given toss of the coin, the odds are always 50-50.”

Answer to Mystery No. 12 (page 40) from
One Minute Mysteries: 65 Short Mysteries You Solve With Math!

Toss-Up Activity

Part 1: Flip a coin 10 times and tally the amount that heads and tails come up.

HEADS		TAILS
TOTALS:		

Part 2: Predict what would come up if you were to flip a coin 100 times.

HEADS: _____ TAILS: _____

Part 3: Predict what would happen if you were to flip a coin 1,000 times.

HEADS: _____ TAILS: _____

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