

## Math 6 Math Battle

December 19, 2021

1.



Julia has ten tokens, numbered from 0 to 9. She gave four of the tokens to David, and 3 to Alex. Then each of the three friends multiplied the number on their tokens. As a result, Julia got 0, David 72, and Alex 90. What is the sum of the numbers on the tokens that Julia kept for herself?

2.



The speed of a moving walkway in the airport is 3 ft./sec. A young boy can comfortably walk at 7 ft./s on a flat surface. How long it will take a young boy to walk a 300 ft. long moving walk in the opposite direction?

3. A very special island is inhabited only by knights and knaves. Knights always tell the truth, and knaves always lie. You meet three inhabitants: Alice, Rex and Bob. Alice tells you that Rex is a knave. Rex tells you that it's false that Bob is a knave. Bob claims, "I am a knight or Alice is a knight." Can you determine who is a knight and who is a knave?
4. On a piece of paper, Neha has drawn a green square and Jememah— a red square. Is it always possible to cut the paper (by making a single cut along a straight line) so that each square is cut into two pieces of equal area?
5. Cut a  $3 \times 9$  rectangle into 8 squares.
6. 8 teams participated in a soccer tournament, and they got 15, 14, 13, 9, 8, 7, 4, and 3 points respectively. Teams received 3 points for a victory, 1 point for a tie, and 0 points for loss. How many ties were there in the tournament? (In this tournament, each team played with each other team exactly once.)