Iditarod – March 2, 2020

Problems & Solutions

The Iditarod sled-dog race is run on a trail that was originally a mail-supply route. In 1925, part of the trail became a lifesaving highway for the children who lived in Nome.

The Iditarod is sometimes called "The Last Great Race on Earth." Every year, it begins in Anchorage, Alaska during the first weekend in March. Each team of 12 to 16 dogs and a musher covers the distance to Nome in approximately 9 to 20 days.

There are two different routes used for the Iditarod. There is a northern route, which is run on even-numbered years, and a southern route, which is run on odd-numbered years. The exact measured distance of the race varies, but according to the official website the northern route is 975 miles long, and the southern route is 998 miles long.

Each of the eight letters in the word "IDITAROD" is written on a card. The cards are put into a bowl. The cards are drawn at random one at a time without replacement and placed from left to right in the order in which they are drawn. What is the probability the letters on the cards correctly spell "IDITAROD"? Express your answer as a common fraction.

The probability of drawing each letter in the correct order to spell IDITAROD is shown in the table. The probability of correctly spelling IDITAROD is the product of the probability of each letter being in the correct spot.

Letter	I	D	I	T	A	R	O	D
Probability	2/8	2/7	1/6	1/5	1/4	1/3	1/2	1/1

*(2/8) × (2/7) × (1/6) × (1/5) × (1/4) × (1/3) × (1/2) × (1/1) = **1/10,080**.*

In 2002, Martin Buser, from Big Lake, Alaska, won the Iditarod in a time of 8 days, 22 hours, 46 minutes, and 2 seconds setting a new record. In 2006, Jeff King, from Denali, Alaska, won the Iditarod in a time of 9 days, 11 hours, 11 minutes, and 36 seconds. Assume the length of the race is 975 miles. What is the positive difference between their mean speeds in miles per hour? Express your answer as a decimal to the nearest hundredth.

Convert each time to hours and divide the distance by the time to find the mean speed of each musher.

Buser: (8 × 24) + 22 + (46 ÷ 60) + (2 ÷ 3600) = 214.7672 hours

   (975 ÷ 214.7672) = 4.5398 miles per hour

King: (9 × 24) + 11 + (11 ÷ 60) + (36 ÷ 3600) = 227.1933 hours

(975 ÷ 227.1933) = 4.2915 miles per hour

4.5398 − 4.2915 = 0.2483

*The positive difference in their mean speeds is **0.25 mph**.*

The 2019 Iditarod followed the southern route. Assume the length of the race was 998 miles. If a musher and sled dog team had a mean speed of 5.3 miles per hour, what was their projected finish time? Express your answer in the form w days: x hours: y minutes: z seconds.

Divide the distance by the mean speed to find the number of hours. Convert the hours to days, hours, minutes and seconds.

(998 ÷ 5.3) = 188.3019 hours

(188.3019 ÷ 24) = 7.8459 days

(0.8459 × 24) = 20.3016 hours

(0.3016 × 60) = 18.096 minutes

(0.096 × 60) = 5.76 seconds

*The projected finish time is **7 days: 20 hours: 18 minutes: 5.76 seconds**.*

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To learn more about the Iditarod go to the following website:
 https://iditarod.com/about/