

# MATHCOUNTS<sup>®</sup> Problem of the Week Archive

## *Martin Luther King, Jr. Day – January 21, 2019*

### ***Problems & Solutions***

Dr. Martin Luther King, Jr., a civil rights activist whose passion and leadership led to great cultural changes in America, was born on January 15, 1929. On November 2, 1983, President Ronald Reagan signed a bill to create a federal holiday honoring Dr. King. The national holiday celebrating the birth of Dr. King was first observed on January 20, 1986. Every year since, Martin Luther King, Jr. Day has been observed on the third Monday of January.

What is the earliest date in January that Martin Luther King, Jr. Day can occur?

*Each day of the week must occur twice before a third Monday can occur. Therefore, 15 days must occur to arrive at a third Monday. The earliest date in January the nation can celebrate Martin Luther King's birthday is **January 15**.*

What is the latest date in January that Martin Luther King, Jr. Day can occur?

*If January 1 occurs on a Tuesday, the third Monday will occur two weeks and six days later, or 20 days later. The latest date in January the nation can celebrate Martin Luther King's birthday is **January 21**.*

In what year will Martin Luther King, Jr. Day next occur on Dr. King's actual birthday, January 15?

*In 2019, January 21 is the third Monday of the month. In 2020, January 21 will fall on Tuesday, making January 20 the third Monday. Since 2020 is a leap year, it follows that, January 20 will not fall on Tuesday, but on Wednesday the next year. That means that in 2021, the third Monday of the month will be January 18. In 2022, the third Monday of the month will be January 17. In 2023, the third Monday of the month will be January 16. So, the third Monday of the month will next be January 15 in **2024**.*

What is the probability that Martin Luther King, Jr. Day will occur on Dr. King's actual birthday?  
Express your answer as a common fraction.

*The third Monday can fall on any of the dates January 15 through 21. Since Dr. King's actual birthday is January 15, the probability that the national holiday occurs on that date is **1/7**.*

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