Math Challenge 6
Solutions

1. If today is Sunday, what day is the day after tomorrow? **Answer: Tuesday**

2. Suppose today is Tuesday. What day of the week will it be 10 days from now? **Answer: Friday**

3. If the day before yesterday was Sunday. What day is one week from today? **Answer: Tuesday**

4. How many days are there **between** November 25th and December 1st on the same year? **Answer: 5**

5. Suppose that five days ago is Friday. What day of the week will the day after tomorrow be? **Answer: Friday**

6. The last Friday of a particular month is on the 25th day of the month. What day of the week is the first day of the month? **Answer: Tuesday**
   Count back to the first day. Three weeks or 21 days before Friday the 25th is Friday the 4th. The 3rd is Thursday, the 2nd is Wednesday, and the 1st is Tuesday.

7. Suppose today is Tuesday. What day of the week will it be 50 days from now? **Answer: Wednesday**
   Tuesdays occur 7, 14, 21, … days after today. The largest multiple of 7 that is less than 50 is 49. Therefore, 49 days from today is Tuesday. So the 50 days from today is Wednesday.

8. Suppose two days before yesterday was Wednesday. What day of the week will it be 100 days from today? **Answer: Monday**
   If two days before yesterday was Wed, today is Saturday. Saturdays occur 7, 14, 21, …days after today. The largest multiple of 7 that is less than 100 is 98. Therefore, 98 days from today is Saturday. It follows that 100 days from today is Monday.

9. The month of January has 31 days. Suppose January 1 occurs on Monday. What day of the week is February 22 of the next month? **Answer: Thursday**
   There are 31+22=53 days in the interval from Jan 1 to Feb 22 inclusive. Mondays occur on days 1, 8, 15, 22, 29, 36, 43, and 50 of the interval. Then day 53 is on Thursday.

10. Suppose two days ago was Sunday. What day of the week will 365 days from today then be? **Answer: Wednesday**
    If two days ago was Sunday, today is Tuesday. 7 days from today will be Tuesday and so will 14 days, 21, days, 28, days from today, and so on. The closest multiple of 7 to 365 is 364. Because 364 days from today is Tuesday, then 365 days from today is Wednesday.

11. If November 12 fell on Tuesday, what day was Christmas on that same year? **Answer: Wednesday**
    Nov 12, 19, 26, Dec 3, 10, 17 and 24 fell on Tuesday. Therefore Christmas is on Wednesday.

12. October 26, 2018 will be a Friday. What day of the week will July 31, 2018 be? **Answer: Tuesday**
    Backward strategy: Since Oct 26 is a Friday, then Oct, 19, 12, 5 Sep 28, 21, 14, 7, Aug 31, 23, 17, 10, and 3 are also Fridays. Aug 2 is Thursday, Aug 1 is Wednesday, so July 31 is a Tuesday.

13. What is the maximum number of Mondays that can occur in 52 consecutive days? **Answer: 8**
    There are 7 weeks and 3 days in 52 days. Each week contains 1 Monday. In order to have the largest or maximum number of Mondays, one of the 3 days left must also be a Monday. Therefore, the maximum number of Mondays that can occur in 52 days is 7 + 1 = 8.

14. September 1 was the first day of school for Kimia. How many days does she have to wait from the start of school until Christmas (December 25)? **Answer: 115**
    From Sep 1 – 30, there are 30 days. There are 61 days in October and November. Total number of days she has to wait is: 30 + 61 + 24 = 115

***Math Challenge 7** will be available online January 15, 2016 at www.mathinaction.org.*