20

sequence and series

2015A

7. How many terms are there in the arithmetic sequence $13, 16, 19, \ldots, 70, 73$?

(A) 20 **(B)** 21 **(C)** 24 **(D)** 60 **(E)** 61

2000

6. The Fibonacci sequence $1, 1, 2, 3, 5, 8, 13, 21, \ldots$ starts with two 1s, and each term afterwards is the sum of its two predecessors. Which one of the ten digits is the last to appear in the units position of a number in the Fibonacci sequence?

(A) 0 **(B)** 4 **(C)** 6 **(D)** 7 **(E)** 9

2003B

8. The second and fourth terms of a geometric sequence are 2 and 6. Which of the following is a possible first term?

(A) $-\sqrt{3}$ **(B)** $-\frac{2\sqrt{3}}{3}$ **(C)** $-\frac{\sqrt{3}}{3}$ **(D)** $\sqrt{3}$ **(E)** 3

2010A

8. Tony works 2 hours a day and is paid \$0.50 per hour for each full year of his age. During a six month period Tony worked 50 days and earned \$630. How old was Tony at the end of the six month period?

(A) 9 **(B)** 11 **(C)** 12 **(D)** 13 **(E)** 14

2009A

9. Positive integers a, b, and 2009, with $a < b < 2009$, form a geometric sequence with an integer ratio. What is a?

(A) 7 **(B)** 41 **(C)** 49 **(D)** 287 **(E)** 2009

2016A

9. A triangular array of 2016 coins has 1 coin in the first row, 2 coins in the second row, 3 coins in the third row, and so on up to N coins in the Nth row. What is the sum of the digits of N?

(A) 6 **(B)** 7 **(C)** 8 **(D)** 9 **(E)** 10

2004B

10. A grocer makes a display of cans in which the top row has one can and each lower row has two more cans than the row above it. If the display contains 100 cans, how many rows does it contain?

(A) 5 **(B)** 8 **(C)** 9 **(D)** 10 **(E)** 11