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2007 Q19

19. Pick two consecutive positive integers whose sum is less than 100. Square both of those integers and then find the difference of the squares. Which of the following could be the difference?

(A) 2 **(B)** 64 **(C)** 79 **(D)** 96 **(E)** 131

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2002 Q19

19. How many whole numbers between 99 and 999 contain exactly one 0?

(A) 72 **(B)** 90 **(C)** 144 **(D)** 162 **(E)** 180

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2016 Q19

19. The sum of 25 consecutive even integers is 10,000. What is the largest of these 25 consecutive even integers?

(A) 360 **(B)** 388 **(C)** 412 **(D)** 416 **(E)** 424

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2017 Q19

19. For any positive integer M, the notation $M!$ denotes the product of the integers 1 through M. What is the largest integer n for which 5^n is a factor of the sum $98! + 99! + 100!$?

(A) 23 **(B)** 24 **(C)** 25 **(D)** 26 **(E)** 27

1987 Q20

20. "If a whole number n is not prime, then the whole number n - 2 is not prime." A value of n which shows this statement to be false is

A) 9 B) 12 C) 13 D) 16 E) 23

1993 Q20

20. When $10^{93} - 93$ is expressed as a single whole number, the sum of the digits is

(A) 10 **(B)** 93 **(C)** 819 **(D)** 826 **(E)** 833

2005 Q20

20. Alice and Bob play a game involving a circle whose circumference is divided by 12 equally-spaced points. The points are numbered clockwise, from 1 to 12. Both start on point 12. Alice moves clockwise and Bob, counterclockwise. In a turn of the game, Alice moves 5 points clockwise and Bob moves 9 points counterclockwise. The game ends when they stop on the same point. How many turns will this take?

(A) 6 **(B)** 8 **(C)** 12 **(D)** 14 **(E)** 24

2016 Q20

20. The least common multiple of a and b is 12, and the least common multiple of b and c is 15. What is the least possible value of the least common multiple of a and c?

(A) 20 **(B)** 30 **(C)** 60 **(D)** 120 **(E)** 180