1997 Q23

23. There are positive integers that have these properties:
    I. the sum of the squares of their digits is 50, and
    II. each digit is larger than the one to its left.
The product of the digits of the largest integer with both properties is

(A) 7   (B) 25   (C) 36   (D) 48   (E) 60

2010 Q24

24. What is the correct ordering of the three numbers 10^8, 5^{12}, and 2^{24} ?

(A) $2^{24} < 10^8 < 5^{12}$ (B) $2^{24} < 5^{12} < 10^8$ (C) $5^{12} < 2^{24} < 10^8$

(D) $10^8 < 5^{12} < 2^{24}$ (E) $10^8 < 2^{24} < 5^{12}$

2011 Q24

24. In how many ways can 10,001 be written as the sum of two primes?

(A) 0   (B) 1   (C) 2   (D) 3   (E) 4

2015 Q24

24. A baseball league consists of two four-team divisions. Each team plays every other team in its division N games. Each team plays every team in the other division M games with $N > 2M$ and $M > 4$. Each team plays a 76 game schedule. How many games does a team play within its own division?

(A) 36   (B) 48   (C) 54   (D) 60   (E) 72

2016 Q24

24. The digits 1, 2, 3, 4, and 5 are each used once to write a five-digit number $PQRST$. The three-digit number PQR is divisible by 4, the three-digit number QRS is divisible by 5, and the three-digit number RST is divisible by 3. What is P?

(A) 1   (B) 2   (C) 3   (D) 4   (E) 5

1994 Q25

25. Find the sum of the digits in the answer to

$$\underbrace{9999\cdots99}_{94\ nines} \times \underbrace{4444\cdots44}_{94\ fours}$$

where a string of 94 nines is multiplied by a string of 94 fours.

(A) 846   (B) 855   (C) 945   (D) 954   (E) 1072

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1997 Q25

25. All of the even numbers from 2 to 98 inclusive, except those ending in 0, are multiplied together. What is the rightmost digit (the units digit) of the product?

(A) 0   (B) 2   (C) 4   (D) 6   (E) 8

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2001 Q25

25. There are 24 four-digit whole numbers that use each of the four digits 2, 4, 5 and 7 exactly once. Only one of these four-digit numbers is a multiple of another one. Which of the following is it?

(A) 5724   (B) 7245   (C) 7254   (D) 7425   (E) 7542