QUESTIONS

4. Jerome wrote each of the integers 1 through 20, inclusive, on a separate index card. He placed the cards in a box, then drew cards one at a time randomly from the box, without returning the cards he had already drawn to the box. In order to ensure that the sum of all the cards he drew was even, how many cards did Jerome have to draw?

(A) 19
(B) 12
(C) 11
(D) 10
(E) 3

EXPLANATIONS

4. **B** To determine how many cards Jerome must draw to achieve his desired goal, determine the worst-case scenario. How many cards could Jerome draw and still *not* have a pile of cards whose face values added up to an even number? His first card, obviously, would have to be an odd-numbered card. If he then drew an even-numbered card for his second card, the sum of the drawn cards would be odd. If he then drew *another* even-numbered card for his third card, the sum would still be odd. As long as Jerome kept drawing even-numbered cards, he would not have a pile of cards whose face values added up to an even number. In the worst-case scenario, then, Jerome would draw one odd-numbered card, then all ten even-numbered cards. At this point, he would have drawn 11 cards and still not have achieved his desired goal. The twelfth card, however, would *have* to be odd, which would make the sum of the 12 cards even. Therefore, Jerome must draw 12 cards to ensure that the sum of *all* the cards he draws is an even number.