Part A

1. What is the value of $\dfrac{3}{1+\dfrac{2}{2+1}}$?

    (A) $\dfrac{3}{5}$ (B) $\dfrac{3}{2}$ (C) $\dfrac{9}{5}$ (D) 3   (E) $\dfrac{9}{2}$

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2. Alain has eaten $\dfrac{1}{5}$ of a pizza and Yacine has eaten $\dfrac{3}{4}$ of the rest. What portion of the pizza is left for Paul?

    (A) 20%   (B) 25%   (C) 40%   (D) 60%   (E) None of these answers

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3. What is the sum of all the integers which divide 18 evenly?

    (A) 21   (B) 31   (C) 37   (D) 38   (E) 39

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4. How many ways can the value 13 be expressed as the sum of exactly 3 different positive integers? For example, $13 = 1 + 4 + 8$ is one such way. Note that $13 = 4 + 8 + 1$ does not count as a "different" way since the same integers are involved in the sum.

    (A) 5   (B) 6   (C) 7   (D) 8   (E) 14

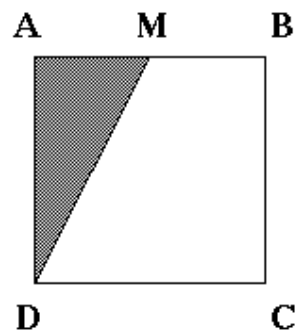5. Nine hens lay 12 eggs in 4 days. How many eggs will 4 hens lay in 9 days?

    (A) 11   (B) 12   (C) 13   (D) 14   (E) 15

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6. The average mark on the first 3 tests Jean took was 76. What average mark does Jean need on the next two tests to have an average of 80 for all of the tests?

    (A) 80   (B) 84   (C) 85   (D) 86   (E) None of these

7. A basket contains some apples. Alice takes $\frac{1}{2}$ of the apples and then places 15 of the apples

   back in the basket. Barry then takes $\frac{1}{2}$ of the remaining apples and places 10 back in the basket.

   They find that each of them has the same number of apples. How many apples are left in the basket?

   (A) 10   (B) 20   (C) 30   (D) 50   (E) Not enough
                                                                              information

8. The integers from 1 to 25 are multiplied together. How many zeros does the result end in?

   (A) 2   (B) 3   (C) 4   (D) 5   (E) 6

9. What number should be removed from the list so that the average of the remaining numbers is 15.25?

   $$7, \quad 12, \quad 15, \quad 21, \quad 27$$

   (A) 7   (B) 12   (C) 15   (D) 21   (E) 27

10. For a visit to the municipal library, a teacher asks her students to form rows of 3 students per row. Solène, Nadine and Yasmine are in the 5th row starting from the front and the 6th row starting from the back. How many students will visit the library?

   (A) 24   (B) 27   (C) 30   (D) 33   (E) 36

Part B

11. Suppose that the operation * is defined by a*b = ab-b for every pair of integers a and b. What is the result of (4*1)*3?

    (A) 0   (B) 1   (C) 6   (D) 9   (E) 12

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12. A number is composed of 4 digits. The last digit is equal to 4 times the first digit, the second digit is equal to 6 times the first digit and the third digit is equal to 3 plus the second digit. What is the sum of this number's digits?

    (A) 9   (B) 10   (C) 11   (D) 20   (E) 23

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13. A bus starts off with some passengers. At the first stop, $\frac{1}{3}$ of the passengers get off and 8 people get on. At the second stop, $\frac{1}{2}$ of the passengers remaining get off and 2 get on the bus. There are now half as many passengers as started the trip. How many persons started the trip?

    (A) 18   (B) 24   (C) 27   (D) 30   (E) 36

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14. Which of the following is the largest?

    (A) $2^{10}3^5$ (B) 2^{17} (C) 4^8 (D) 6^7 (E) 3^9

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15. The area of the figure, in square centimetres, is

    (A) 20   (B) 22   (C) 25   (D) 30   (E) 40

16. Consider the square **ABCD**. **M** is in the middle of **AB**. If the area of triangle **AMD** is 4, find the area of the square **ABCD**.

A   M   B

D   C

(A) 9   (B) 11   (C) 16   (D) 20   (E) None of these answers

17. On a 100 question test, 9 points are given for each correct answer and 5 points deducted for each incorrect answer. Questions which are not answered are not included in the total score. What is the largest number of questions which can be answered to get a total score of 0?

(A) 84   (B) 90   (C) 98   (D) 99   (E) 100

18. The least common multiple of two numbers is 105 and the greatest common divisor is 5. Which of the following could be the sum of the numbers?

(A) 21   (B) 25   (C) 49   (D) 50   (E) 105

19. A tub contains two faucets. Faucet **A** can fill the tub in 15 minutes and faucet **B** can fill the tub in 10 minutes. How long will it take to fill the tub using both faucets?

(A) 6 min.   (B) 7.5 min.   (C) 8 min.   (D) 25 min.   (E) Not enough information

20. The average age of Samir's parents is 49. His father is 8 years older than his mother. If the average age of Samir and his father is 27, how old is Samir?

(A) 1   (B) 5   (C) 9   (D) 16   (E) Not enough information

Part C

21. How many triangles, which have their corners on the perimeter, are there in the figure?

   (A) 17   (B) 20   (C) 24   (D) 26   (E) 27

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22. An ant starts at corner **A** and walks along the edges of a cube visiting every corner of the cube exactly one time. The ant finishes the walk at corner **B**. How many edges does the ant not walk on?

   (A) 2   (B) 3   (C) 4   (D) 5   (E) The number depends on the path taken

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23. What is the next number in the sequence: 1, 2, 3, 4, 5, 8, 7, 16, 9, ...?

   (A) 8   (B) 11   (C) 18   (D) 23   (E) 32

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24. The value of the expression 1-2-3+4+5-6-7+8+9…+76+77-78-79 is equal to

   (A) -98   (B) -80   (C) -60   (D) 40   (E) 80

25. Maurice wants to multiply together two numbers composed of two digits each. Unfortunately, he reverses the digits of one of the numbers and obtains a result which is greater than the exact result by 3015. Which of the following could be one of the numbers?

    (A) 23   (B) 38   (C) 45   (D) 62   (E) 81

26. What is the last digit of 3^{2002}?

    (A) 1   (B) 3   (C) 5   (D) 7   (E) 9