Part A

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

(A) $\frac{1}{13}$ (B) $\frac{1}{7}$ (C) $\frac{1}{5}$ (D) 5 (E) 7

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2. If A is 10% of C, and B is 25% of C, what percent of B is A?

(A) 2.5 (B) 15 (C) 35 (D) 40 (E) 250

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3. What is the value of $\dfrac{1}{1+\frac{1}{x}}$ when x = $\frac{1}{4}$?

(A) $\frac{1}{5}$ (B) $\frac{4}{5}$ (C) $\frac{5}{4}$ (D) 4 (E) 5

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4. In a box of 40 cookies, 24 of the cookies were round and 20 of them were made of chocolate. If 12 cookies were neither round nor made of chocolate, how many round chocolate cookies were in the box?

(A) 4 (B) 8 (C) 16 (D) 20 (E) 28

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5. If 12 is one-quarter of the number A, then three times A is

(A) 9 (B) 12 (C) 48 (D) 72 (E) 144

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6. The value of $\dfrac{99\times101}{.10}$ is closest to

(A) 100 (B) 1000 (C) 10 000 (D) 100 000 (E) 1 000 000

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7. In 10 years, Samuel will be ½ as old as Roman. Five years ago, Samuel was only 1/3 as old as Roman. How old is Samuel now?

   (A) 16 (B) 18 (C) 20 (D) 22 (E) 24

8. If $\frac{x-1}{x+1} = \frac{30}{42}$, what is the value of x?

   (A) 4 (B) 5 (C) 6 (D) 7 (E) 31

9. Water pours into a container at a constant rate of 4 litres per minute. When there are 50 litres of water in the container, a pump begins to pump water out at a rate of 5 litres per minute. How many minutes will it take to empty the container?

   (A) 10 (B) 24 (C) 50 (D) 120 (E) None of these

10. The product of two numbers is 84. The first number is divided by 3 and the second number is multiplied by 4. The product of the two new numbers is then divided by 2. What is the final result of this calculation?

    (A) 14 (B) 24 (C) 42 (D) 56 (E) None of these

Part B

11. Suppose that $a * b = b - \frac{1}{a}$. What is the value of (1*2)*3?

(A) 0 (B) $\frac{1}{3}$ (C) $\frac{1}{2}$ (D) 1 (E) 2

12. A student walks from home to school and returns riding on a bus along the same route. The entire trip takes 40 minutes. If the bus travels 7 times as fast as the student can walk, how long would it take the student to walk in both directions?

(A) 60 min (B) 70 min (C) 75 min (D) 80 min (E) None of these

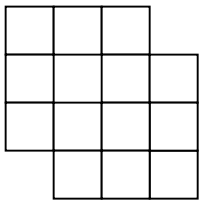
13. What is the smallest positive integer which multiplied by 40 gives a perfect square?

(A) 2 (B) 5 (C) 20 (D) 40 (E) None of these

14. Alice was tested three times. Her second test mark was twice as large as the first and the third mark was three times as large as the second. The average mark for all three tests was 60. What was the second mark?

(A) 20 (B) 40 (C) 60 (D) 120 (E) Not enough information

15. How many different squares are there in the figure shown at right?



(A) 19 (B) 20 (C) 21 (D) 22 (E) 23

16. How many complete revolutions does a wheel with radius 6 centimetres make in rolling a distance of 2 metres?

(A) 4 (B) 5 (C) 10 (D) 11 (E) 33

17. In an archery competition, Galen hits the bullseye three times as often as Jason. Jason hits it four times fewer than Kevin and Eddy hits it one less than twice the number of times that Kevin does. Nathalie hits the bullseye as many times as Jason and Galen combined. If Kevin hits the bullseye 9 times, how many times was the bullseye hit?

(A) 24 (B) 42 (C) 54 (D) 60 (E) 66

18. How many even integers between 15 and 75 are not evenly divisible by 3?

(A) 10 (B) 15 (C) 20 (D) 30 (E) 45

19. Jonas takes a two-digit number and subtracts the sum of the digits from it. Which of the following answers is a possible result of the calculation?

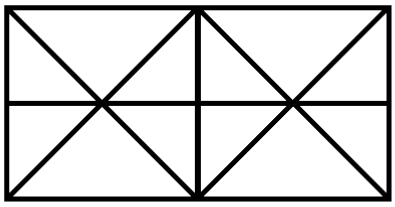
(A) 42 (B) 49 (C) 55 (D) 63 (E) Not enough information

20. Which of the following is the smallest?

(A) $\dfrac{2}{1-\frac{1}{3}}$ (B) $\dfrac{2}{1+\frac{1}{3}}$ (C) $\dfrac{3}{1+\frac{1}{2}}$ (D) $\dfrac{3}{1-\frac{1}{2}}$ (E) $\dfrac{2}{\frac{1}{2}+\frac{1}{3}}$

Part C

21. How many triangles are there in the figure shown?

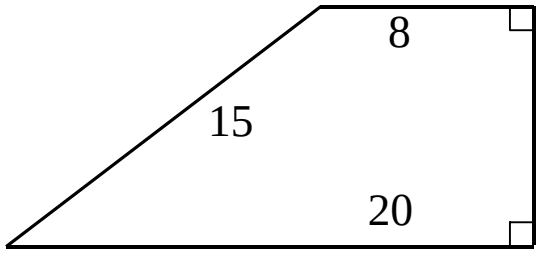


(A) 22 (B) 26 (C) 28 (D) 30 (E) None of these

22. The sum of the first 100 terms of the sequence 1, -2, 3, 4, -5, 6, 7, -8, 9, 10… is 1750. The sum of the first 100 terms of the sequence 1, 2, -3, 4, 5, -6, 7, 8, -9, 10… is equal to

(A) 1684 (B) 1717 (C) 1783 (D) 1816 (E) None of these

23. The area of the given figure is



(A) 100 (B) 126 (C) 144 (D) 180 (E) Not enough information

24. A "word" is any sequence of letters. How many words of three letters can we form using only the letters A, B, B, C, C, C? For example, ACC, CAB, and CCA are three such words.

(A) 12 (B) 13 (C) 16 (D) 18 (E) 19

25. The first 15 odd integers are multiplied together. The answer ends with the digit

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

26. The integers from 1 to 9 are each written once in a 3 x 3 table. The totals of the values in each row and column are given. What number is in the space indicated by the * ?

			15
			12
		*****	**18**
24	**6**	**15**	

(A) 4 (B) 5 (C) 6 (D) 7 (E) None of these