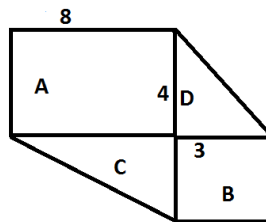


7. Beginning with 2 and counting by 9, you count 2, 11, 20, 29. Which of these numbers will not be counted?

(A) 992 (B) 1001 (C) 1028 (D) 1039 (E) 1055

8. The diagram shows a 3 by 3 square, a 4 by 8 rectangle and two right triangles. The area of the rectangle is equal to A, the area of the square is equal to B and the areas of the two right triangles are equal to C and D. Then the fraction $\frac{C+D}{A+B}$ is equal to



(A) $\frac{15}{41}$ (B) $\frac{18}{41}$ (C) $\frac{21}{38}$ (D) $\frac{24}{41}$ (E) $\frac{41}{18}$

9. You have three six-sided dice of different colors. You throw all three dice at once. In how many different ways can the sum of the results be strictly bigger than 14?

(A) 6 (B) 10 (C) 15 (D) 20 (E) 35

10. $(\sqrt{5}-\sqrt{3})^2$ is equal to

(A) $8-4\sqrt{15}$ (B) $8-4\sqrt{8}$ (C) $8-2\sqrt{15}$ (D) $8-2\sqrt{8}$ (E) $8+2\sqrt{15}$

Part B

11. At the third Fredericton interplanetary meeting, the conference room is filled with humans and Martians. Martians are green creatures having two heads and five legs. If we can count 288 heads and 664 legs in the conference room, how many Martians are there?

- (A) 80 (B) 88 (C) 96 (D) 104 (E) 112
-

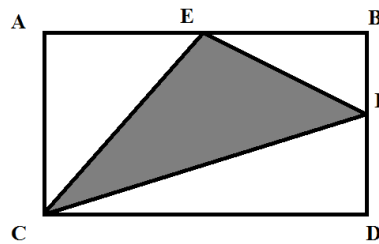
12. A solid $5 \times 4 \times 3$ box is painted blue. It is then cut into small $1 \times 1 \times 1$ cubes. How many of those small cubes have been painted on exactly two faces?

- (A) 8 (B) 12 (C) 18 (D) 24 (E) 36
-

13. The next to last digit in 15^{2015} is a

- (A) 1 (B) 2 (C) 3 (D) 5 (E) 7
-

14. ABCD is a rectangle twice as wide as it is high. E and F are the middle points of the sides AB and BD. Which proportion of the total area of the rectangle is shaded?



- (A) $\frac{1}{8}$ (B) $\frac{1}{4}$ (C) $\frac{3}{8}$ (D) $\frac{1}{2}$ (E) $\frac{5}{8}$
-

15. The sum of all numbers between 1 and 100 which are multiples of 7 but not multiples of 5 is equal to

- (A) 210 (B) 315 (C) 420 (D) 525 (E) 630
-

16. A 4 by 4 square is said to be magical if you place into it the numbers from 1 to 16, once each, in such a way that the sum of all four numbers of each horizontal line, vertical line or diagonal line with four numbers is equal to 34. A possible value for X so that we can complete the square below into a magical square is

	1		7
	8		2
5		3	
4		6	X

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

17. You have five different playing cards. There are two players and you want to give two cards to each of them. In how many different ways can this be done?

- (A) 10 (B) 20 (C) 30 (D) 36 (E) 45

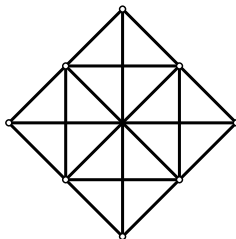
18. A 5 by 5 square is inscribed in a circle. What is the area of this circle?

- (A) 25 (B) $\frac{25\pi}{2}$ (C) 25π (D) $\frac{25\pi^2}{2}$ (E) $25\pi^2$

19. If $x^2 - y^2 = 51$ and $x - y = 3$ then y is equal to

- (A) 7 (B) 8 (C) 9 (D) 10 (E) 14

20. How many triangles of all sizes are there in the following diagram?



- (A) 24 (B) 32 (C) 40 (D) 44 (E) 48

