Part A

- 1. On a holiday, three children share a bag of candies. If the first child takes two fifths of it and the second takes one third of it, there are 4 candies left for the third. How many candies were in the bag at the beginning?
 - (A) 10 (B) 15 (C) 16 (D) 18 (E) 20

2.	If $x = \frac{1}{\left(\frac{2+3}{4+5+1}\right)^2}$	$\left(\frac{x}{6}\right)$, then $\frac{x}{x+1} + \frac{x+1}{x}$	1 – is equal to		
	(A) $\frac{12}{25}$	(B) $\frac{3}{4}$	(C) $\frac{4}{3}$	(D) $\frac{17}{12}$	(E) $\frac{25}{12}$
3.	Only one of the number?	se numbers do not giv	ve a remainder of 3 v	vhen it is divided by	6. What is this
	(A) 915	(B) 2015	(C) 3015	(D) 3915	(E) 6015
4.	Peter, John and flowers in an ho Working alone,	I Jack are making pa our while Peter and J how many flowers ar	aper flowers. Work ack make 50 and Jo e made by Peter in a	king together, Peter hn and Jack make 5 in hour?	and John make 45 5, also in one hour.

(A) 15	(B) 20	(C) 25	(D) 30	(E) 35

5. The perimeter of a triangle measures 17 cm. If the measures in cm of the two smaller sides of the triangle are the integers x and x + 2, then the measure of the third side is

(A) 5 cm	(B) 7 cm	(C) 9 cm	(D) 11 cm	(E) 13 cm
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6. Elizabeth the millionaire started with \$500 in her pocket the day she turned 20. Since then, her assets have doubled each year on her birthday. How old was she the first time she was a millionaire on her birthday?

(A) 29	(B) 31	(C) 32	(D) 40	(E) 41

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

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



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 e	qual 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 x 4 x those small cub	x 3 box is painted b bes have been painte	blue. It is then cut id on exactly two fa	into small 1 x 1 x 1 ces?	cubes. How many of
(A) 8	(B) 12	(C) 18	(D) 24	(E) 36
13. The next to las	at 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?



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
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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

8 2	
5 3	
4 6 X	
(A) 11 (B) 12 (C) 13 (D) 14 (E) 1	5

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
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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?



Part C

21.	A number is constructed using the first thousand even numbers written one after the other, beginning with 2. This number then starts with 24681012141618 What is the 2015th digit of this number?					
	(A) 1	(B) 2	(C) 4	(D) 6	(E) 8	
22.	If you multiply result?	y all multiples of 5 f	rom 1 to 101, how m	any zeros are there a	t the end of the	
	(A) 12	(B) 15	(C) 18	(D) 20	(E) 24	
23.	In a bakery you In how many d mocha and a m	i can buy six kinds o ifferent ways can yo ille-feuille?	of cake including module of the second se	chas, mille-feuilles a types of cake witho	nd four other types. ut taking both a	
	(A) 10	(B) 12	(C) 16	(D) 18	(E) 20	
24	A plane flying	east passes over	another plane flying	north at 9 AM	Fach plane keeps its	

24. A plane flying east passes over another plane flying north at 9 AM. Each plane keeps its direction and its speed. At 9:15 AM, the distance between the planes is 260 km. If the first plane has traveled 100 km since 9 AM, then the speed of the other plane, in kilometers per hour, is

(A) 240	(B) 360	(C) 480	(D) 720	(E) 960

25. You have to move from point A to point B either following straight lines (all either horizontal or vertical) or portions of circles, with only one rule to follow: either traveling along a straight line or a portion of a circle, you should never move left. How many different paths are there between A and B?



26. How many integers between 1 and 1000 contain the digits 3 and 5 but not the digit 7?

(A) 42	(B) 45	(C) 48	(D) 50	(E) 54
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