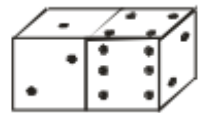## Junior: Class (9-10)

3-Point-Problems

Q1: Asif, Usman and Sami have 30 balls together. If Usman gives 5 to Sami, Sami gives 4 to Asif and Asif gives 2 to Usman, then the boys will have the same number of balls. How may balls have Asif at first?

    A) 15   B) 13   C) 11   D) 9   E) 8

Q2: In the figure 5 faces of the dice are visible. What is the sum of the points on the remaining 7 invisible faces of the dice?

    A) 12   B) 15   C) 27   D) 7   E) 36

Q3: In a lucky draw of prize tickets it is announced "The winning tickets are those, which have at least 5-digits in their number and at most three of their digits are larger than 2." If the 5-tickets drawn have numbers 1022, 22222, 102334, 213343 and 3042531. How many of them were wining ones.

    A) 1   B) 2   C) 3   D) 4   E) 5

Q4: In a triangle ABC, D is the midpoint of AB, E is the midpoint of DB, F is the midpoint of BC. If area of triangle ABC is 96 square units, then the area of ΔAEF is,

   A) 16   B) 24   C) 32   D) 36   E) 48

Q5: Meera Jamal has put 2007 balls in three bags A, B and C in such a way that each bag contains exactly the same number of balls. If she moves 2/3 of the balls from bag 'A' to bag 'C' then the ratio between the number of balls in bag A and C will be.

    A) 2:3   B) 1:5   C) 1:2   D) 1:3   E) 2:5

Q6: A certain committee has 32 numbers. How many numbers will it have in three year's time, if the number of members increases each year compared to the previous one by 50%?

    A) 182   B) 128   C) 108   D) 96   E) 80

Q7: How many possible routes with the minimum number of moves are there for the King to travel from the top left square to the bottom right square of the grid (The King can move to any adjacent square, including diagonally).
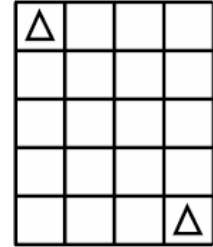
A) 1   B) 4   C) 7   D) 6   E) 9

Q8: The points $A(2006, 2007)$, $B (2007, 2006)$, $C (-2006, - 2007)$, $D (2006 – 2007)$ and $E (2007,-2006)$ are marked on a co-ordinate grid. The line segment which is horizontal is

A) *AD*   B) *BE*   C) *BC*   D) *CD*   E) *AB*

Q9: If given different letters represent different digits. Find the least possible value of the expression 2007-KAN-GA-ROO. (That is any letter can have minimum value "Zero" and a maximum value "9")

A) 100   B) 110   C) 112   D) 119   E) 129

Q10: The diagram on the right shows a $\triangle ABC$, where two lines are drawn to the opposite sides from vertices "*A*" and "*B*". This divides $\triangle ABC$ into nine non-overlapping sections. If four lines are drawn to the opposite sides from each of the vertices *A* and *B*, what is the number of non-overlapping sections into which triangle is divides.
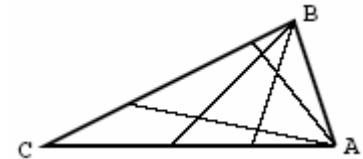
A) 10   B) 25   C) 36   D) 42   E) 49

4-Point-Problems

Q11: An island is inhabitate by liars and nobles (The liars always tell lies and the nobles always tell the truth) one day 12 islanders, both liars and nobles, gathered together and issued a few statements. Two people said: "Exactly two people among us twelve are liars'. The other four people said; "Exactly four people among us twelve are liars." The rest six people said: "Exactly six people among us twelve are liars" How many liars were there?

A) 2   B) 4   C) 6   D) 8   E) 10

Q 12: In order to obtain the number 8^8, we must raise 4^4 to the power.

A) 2   B) 3   C) 4   D) 8   E) 16

Q 13: Seven consecutive natural number have a sum equal to 105 how many of them are divisible by "5"

A) No one   B) 1   C) 2   D) 3   E) 7

Q 14: The students were solving an interesting problem at the "Kangaroo". As a result the number of the boys who had solved the problem turned out to be the same as the number of girls who had not solved the problem. Which are more: those who had solved the problem or the girls?

A) Girls   B) Those who have solved the problem
C) Equal   D) Impossible to find.
E) The situation is not possible.

Q 15: A 10 *m* long rope is fastened to the corner of the house. A dog is fastened to the end of the rope. Find the perimeter of the area where the dog can be found.

A) 20π B) 22π C) 40π D) 88π E) 100π
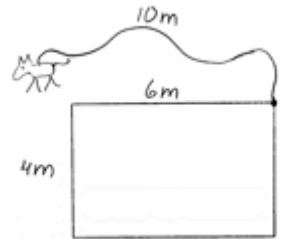
Q 16: Its 9:00 AM and I am driving with a velocity of 100 Km/h. with this velocity I have enough petrol for a distance of 80 KM. the nearest petrol pump is 100 KM away. It is known that the amount of petrol any car uses per KM is inversely proportional to the velocity of the car. I want to reach the petrol pump as soon as possible. At what time can I arrive at the petrol pump?

A) 10 : 12 AM   B) 10 : 15 AM   C) 10 : 20 AM
D) 10 : 25 AM   E) 10 : 50 AM

Q 17: A sequence of letters KANGAROO KANGAROO…KANGAROO contains 20 words KANGAROO. First, all the letters in the odd places were erased. Then, in the resulting sequences, once more all the letters in the odd places were erased, and so on. At the very end, only one letter remained this letter is.

A) *K*   B) *A*   C) *N*   D) *R*   E) *O*

Q 18: A mother is 21 years older than her 5 years old son. After how many years the son will be one-third of his mother's age?

A) 3   B) 4.5   C) 5   D) 5.5   E) 7

Q 19: Two schools should play one against the other table tennis. Five students represent each of these schools. Doubles should only play. Each pair from one school should play against each pair from the other school just once. Each student should play.

A) 10 Matches   B) 20 Matches   C) 30 Matches

D) 40 Matches   E) 50 Matches

Q 20: In the next table there must be two red squares and two green squares in each line and each column. What colours must be in X and Y? $XY =$

R		R	
		R	
	X		G
	Y		

A) *RR*   B) *RG*   C) *GR*   D) *GG*   E) It is impossible

5-Point-Problems

Q 21: In a village there are not two people with the same number of hair. Nobody have exactly 2007 hair. Ahmed has the most number of hair in the village. The number of villagers is more than the number of Ahmed's hair. What is the maximum number of villagers?

A) 0   B) 2006   C) 2007   D) 2008   E) 2009

Q 22: A coin with diameter 1cm rolls around the outside of a regular hexagon with edge length 1cm, as shown. In centimeters, what is the length of the path traced out by the centre of the coin?

A) $6 + \pi/2$ B) $6 + \pi$ C) $12 + \pi$ D) $6 + 12\pi/6$ E) $12 + 2\pi$

Q 23: An equilateral triangle and a regular hexagon are inscribed is a circle. Further, that circle is inscribed in an equilateral triangle as shown in the figure. S_1 is the area of the big triangle, S_2 is the area of the little triangle and S_3 is the area of the hexagon. What is true then?

A) $S_3 = \sqrt{S_1 \times S_2}$ B) $S_3 = \dfrac{S_1 \times S_2}{2}$ C) $S_1 = S_2 + S_3$

D) $S_3 = \sqrt{S_1^2 \times S_2^2}$ E) $S1 = S_3 + 3S_2$

Q 24: Let "A" be the least number with the following property: $10A$ is a perfect square and $6A$ is a perfect cube. How many positive divisors have the number A?

A) 30   B) 40   C) 54   D) 72   E) 96

Q 25: In a locker there are some necklaces. All the necklaces have the same number of diamonds (at least two diamonds in each necklace). If the number of diamonds in the locker would be known, then the number of the necklaces would also be known without doubt. The number of diamonds is more than 200 but less than 300. how many necklaces are there in the locker?

A) 16   B) 17   C) 19   D) 22   E) 25

Q 26: Two circles have their centers on the same diagonal of a square. They touch each other and the sides of the squares as shown. The square has a side of length 1 cm. what is the sum of the lengths of the radii of the circles is centimeter?
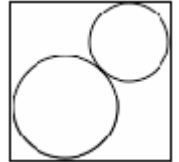
A) 1/2   B) $\dfrac{1}{\sqrt{2}}$ C) $\sqrt{2}-1$ D) $2-\sqrt{2}$ E) 1

Q 27: In a box there are 3 green, 3 yellow and 3 blue cards. For each colour cards are marked 1,2 and 3. You take randomly three cards from the box. Which of the following events has the largest probability?

A) The three cards are of the same colour
B) The three cards, independently on their colours, have number 1,2 and 3.
C) The three cards are of three different colours
D) The three cards have the same number.
E) Another answer.

Q 28: In a party five friends are going to give each other gifts in such a way that everybody gives one gift and receives one (of course, no one should receive his own gift). In how many ways is this possible?

A) 5   B) 10   C) 44   D) 50   E) 120

Q 29: The real solutions of the equation $x^2 - 3x + 1 = 0$ are "a" and "b" value of a^3+b^3 is

A) 12   B) 14   C) 16   D) 18   E) 24

Q 30: A two digit number is reduces by 45 if the order of the digits is reversed. The number is.

A) 65   B) 72   C) 81   D) 90   E) 97