

International Indian School, Riyadh - Girls Section

Grade : X

Subject : Mathematics

12	If two trees of height x and y standing on the two ends of a road subtends angle of 30° and 60° respectively at the mid-point of the road then the ratio $x:y$ is : (a) 3:1 (b) 1:3 (c) 1:1 (d) 3:3
13	If $(a,0)$, $(0,b)$ and (x,y) are collinear, then : (a) $ax + by = 1$ (b) $ax - by = ab$ (c) $ay + bx = ab$ (d) $-ax + by = ab$
14	The sum of the first 15 multiples of 8 is : (a) 920 (b) 860 (c) 900 (d) 960
15	$(x+2)^3 = (x^2 - 1)2x$ is a : (a) Constant (b) quadratic equation (c) linear equation (d) cubic equation

Section – B

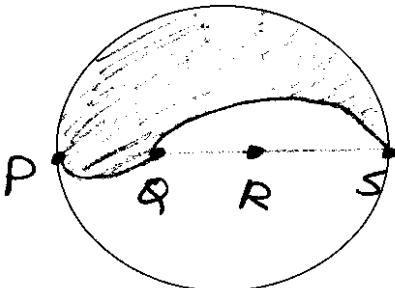
01	Find a positive number which when decreased by 20 is equal to 69 times its reciprocal. (23)
02	The sum of n terms of an A.P is $5n^2 - 3n$. Find the A.P Hence find its 10^{th} term. (92)
03	Two concentric circles are of radii 7cm and r cm respectively, where $r > 7$. A chord of the larger circle of length 48 cm, touches the smaller circle. Find r .
04	Draw a right ΔABC in which $BC = 12\text{cm}$, $AB = 5\text{ cm}$ and $\angle B = 90^\circ$. Construct a Δ similar to it and of scale factor $5/3$. Is the new Δ also a right Δ .
05	Find the area of a right Δ , if the diameter of its circumcircle is 10 cm and altitude drawn to the hypotenuse is 4.5 cm long.
06	Diameters of three concentric circles are in the ratio 1:2:3. The sum of circumference of these circles is 364 cm. Find the area enclosed between second and third circle. (770 cm^2)
07	A coin is tossed two times. Find the probability of getting at least one head.
08	The circumferences of two circles are in the ratio 2:3. Find the ratio of the areas. (4:9)
09	A circus tent is cylindrical up to a height of 3m and conical above it. If the diameter of the base is 105m and the slant height of the conical part is 53m, find the total canvas used in making the tent. (9735 m^2).
10	Find the distance between the points $(a-b, a+b)$ and $(-a-b, a-b)$. ($2\sqrt{a^2+b^2}$ units)

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Section – C

01	If $x = \sqrt{6 + \sqrt{6 + \sqrt{6}}}$ and x is a natural, then find x. (x=3)
02	If the sum of a certain number of terms starting from first of an A.P 25, 22, 19, is 116. Find the last term. (4)
03	In an A.P, if the 12 th term is -13 and the sum of first four terms is 24, what is the sum of first 10 terms? (0)
04	A bus has wheels which are 112 cm in diameter. How many complete revolutions does each wheel make in 20 minutes, when the bus is travelling at a speed of 66km/hour? (6250)
05	Construct a triangle similar to a given triangle with sides 6cm, 7cm and 8cm and whose sides are $\frac{7}{5}$ th of the corresponding sides of the given triangle.
06	The incircle of a ΔABC touches the sides AB, BC and CA at the points P,Q and R respectively. Show that $AP + BQ + CR = PB + QC + RA = \frac{1}{2} \times$ (perimeter of ΔABC)
07	PQRS is a diameter of a circle of radius 6 cm. The lengths PQ, QR and RS are equal. Semi-circles are drawn on PQ and QS as diameter. Find the perimeter and area of the shaded region.
	
	(12 π cm, 37.71 cm ²)
08	A storage oil tanker consists of a cylindrical portion 7m in diameter with two hemispherical ends of the same diameter. The oil tanker lying horizontally. If the total length of the tanker is 20m, then find the capacity of the container. (680.17m ³)
09	If the point P (x,y) is equidistant from the points A (a-b, a+b) and B (a+b, b-a) then prove that bx=ay.
10	Prove that (b+a,c) (c+a,b) and (c+b,a) are collinear.
11	Show that the points given below are the vertices of an isosceles right Δ . (7,10), (3, -4) and (-2,5)

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12	What is the probability of having 53 Mondays in a leap year?
13	A game consists of tossing a coin 3 times and noting its outcome each time. Hanif wins if he gets three heads or three tails and loses otherwise. Calculate the probability that Hanif will lose the game.
14	The length of the shadow of a tower standing on level ground is found to be $2x$ metres longer when the sun's altitude is 30° than when it was 45° . Prove that the height of tower is $(\sqrt{3}+1)x$ metres.
15	A person standing on the bank of the river observes that the angle subtended by a tree on the opposite bank is 60° , when he retreats 20m from the bank, he finds the angle to be 30° . Find the height of the tree. (17.32m)

Section – D

01	If the roots of the equation $x^2+2cx+ab = 0$ are real and unequal, prove that the equation $x^2-2(a+B)x+a^2+b^2+2c^2 = 0$ has no real roots.
02	Out of a number of a saras birds, one – fourth of the number are moving about in lots, $1/9^{\text{th}}$ coupled with $1/4^{\text{th}}$ as well as 7 times the square- root of the number move on the hill, 56 birds remain in the vakala trees. What is the total number of birds? (576)
03	A new mobile set costs Rs 10,000/-. Assume that it depreciates 24% the first year, 20 % the second year, 16% the third year and continues in the same manner for 6 years. If all depreciations apply to the original cost, what is the value of the mobile set in 6 years? (Rs 1600/-)
04	If pth, qth rth terms of an A.P are a,b and c respectively, then show that : (a) $a(q-r) + b(r-p) + c(p-q) = 0$ (b) $(a-b)r + (b-c)p + (c-a)q = 0$
05	A ladder rests against a wall at an angle x to the horizontal. Its foot is pulled away from the wall through a distance a , so that it slides a distance b down the wall making an angle y with the horizontal. Show that $\frac{a}{b} = \frac{\cos x - \cos y}{\sin y - \sin x}$

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