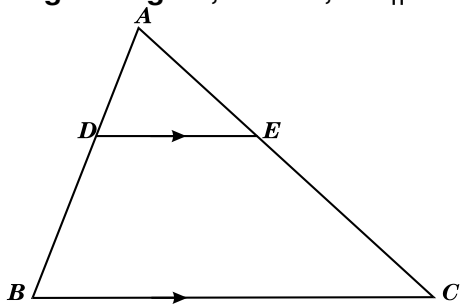
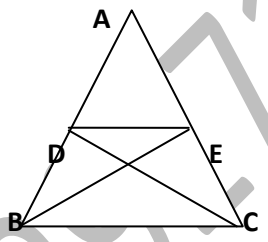
Guess Paper – 2014
Class – X
Subject – Mathematics
(M.M.40) TIME 1HR.

1. If the ratio of the corresponding sides of two similar triangles is 2:3, then what is the ratio of their corresponding height?
2. The areas of two similar triangles and are 25cm^2 and 49 cm^2 respectively. If QR = 9.8 cm, find BC.
3. *DE is parallel to BC. If AD = 12.4 cm, DB = 6.2cm, AE = 2x and EC = 6x – 2. Find the value of x.*
4. Prove that if a line is drawn parallel to one side of a triangle to intersect the other two sides in distinct points then the other two sides are divided in the same ratio.
5. In the given figure, in ABC, DE || BC so that AD = 2.4cm, AE = 32cm and EC=4.8cm. Find AB.



6. State and prove Basic Proportionality Theorem. Using the above theorem, if ABCD is a trapezium whose diagonals intersect each other at O show that AO/OC = BO/OD.
7. It the given fig-2, if Δ ABE ≅ Δ ACD, prove that Δ ADE ~ Δ ABC.



8. *Prove that the square of the hypotenuse is equal to the sum of the squares of the other two sides. Using the above result show that sum of the squares of the sides of a rhombus is equal to the sum of the squares of its diagonals.*
9. *Prove that the ratio of areas of 2 similar triangles is equal to the ratio of squares of their corresponding sides. Using the above result prove that area of an equilateral triangle described on one side of a square is half the area of triangle described on one of its diagonals.*
10. Find the missing frequencies f_1 and f_2 in the following frequency distribution table, it is given that the mean of the distribution is 56.

C.I	0 - 20	20 - 40	40 - 60	60 - 80	80 – 100	100 - 120	Total

F	16	f_1	25	f_2	12	10	90

BY :AJAI KR. SHUKLA

RACHNA TUTORIALS

6/1003 JANKIPURAM VISTAR LUCKNOW

CLASS X MATHS (H.W)

1. Use Euclid's division lemma to show that the square of any positive integer of the form 3m or (3m+1) for some integer m.
2. Prove that 2 -3√5 is an irrational number.
3. On dividing x^3-3x^2+x+2 by a polynomial g(x), the quotient & the remainder are x-2 & -2x + 4 respectively. Find g(x).
4. Find the value of k for which the polynomial $x^4+10x^3+25x^2+15x+k$ is exactly divisible by x+7.
5. For what value of x will $x^4-3x^3+7x^2-8x+9$ be exactly divisible by x^2-x+4?
6. If the polynomial $x^4-6x^3+16x^2-25x+10$ is divided by another polynomial x2-2x+k the remainder comes out to be x + a. Find the values of k & a.
7. Graphically find whether the pair of linear equations: 4x – 3y + 5 = 0 ; 6x-4.55 +7.5=0 is consistent or inconsistent.
8. Solve : $\frac{4y-6x}{xy}=1, \frac{3x+4y}{xy}=5$
9. Solve: 10/(x +y) +4/(y –x) = -2 , 15/(x +y) – 7/(y –x) =10
10. A number consists of two digits. When it is divided by the sum of the digits, the quotient is 7.The sum of the reciprocals of the digits is 9 times the product of the reciprocals of the digits. Find the number.
11. 2 men & 5boys can do a piece of work in 4 days while 4 men & 4 boys can do it in 3 days. How long would it take one man or one boy to do it?
12. Taxi fare consists of a constant charge together with the charge for the distance covered. A person travelling 15km pays Rs115 for the journey & a person travelling 27km pays Rs199 for it. Find the charges one will have to pay for a journey of 50 km.

13. **A boat goes 30km upstream & 44km downstream in 10hrs. It can go 40km upstream & 55km downstream in 13hrs. Find the speed of the stream & that of boat in still water.**
14. **Meena went to bank to withdraw Rs2000.She asked the cashier to give her Rs50 & Rs100 notes only. If Meena got 25 notes in all, find how many notes of Rs50 & Rs100 she got.**
15. **Prove each of the following:**
    a. **(sec A – cos A)(cot A + tan A) = tan A secA**
    b. **(1 + cot A – cosec A)(1 + tan A + sec A) = 2**
    c. **$\tan^2 A + \cot^2 A + 2 = \sec^2 A \operatorname{cosec}^2 A$**
    d. **$\sec^4 A - \sec^2 A = \tan^4 A + \tan^2 A$**

BY: AJAI KR. SHUKLA

RACHNA TUTORIALS

6/1003 JANKIPURAM VISTAR LUCKNOW (9453292712)

CLASS X MATHS TEST

1. Find the value of k, for which given value is a zero of the given quadratic polynomial (a) $(x^2+2kx-3)$;x = -1/2 (b)$x^2+4ax-k$; x= -a
2. Verify that -1, 1, 2 are zeros of a cubic polynomial x^3-2x^2-x+2 & verify the relationship between the zeros & its coefficients.
3. Form a quadratic polynomial whose (i) zeros are 2 & -3(ii) zeros are -4/5 & 1/3.
4. Solve the equations 15x -6y = 30 ; 17x + 10y =118
5. Solve the equations ax + by = c; bx – ay = 0
6. A fraction becomes 9/11, if 2 is added to both the numerator & denominator. If 3 is added to both the numerator & denominator it becomes 5/6. Find the fraction.
7. Solve(By cross multiplication) 2/u + 3/v = 13 ; 5/u – 4/v = -2
8. Find the values of p & q for which the following system has infinite solutions. 2x + 3y = 7 ; (p + q)x + (2p – q)y = 21.
9. I am three times as old as my son. Five years later, I shall be

two and a half times as old as my son. How old I am and how old is my son?

10. A and B are friends and their ages differ by two years. A's father D is twice as old as A, & B is twice as old as his sister C. The ages of D and C differ by 40 years. Find the ages of A and B?
11. Five years hence father's age will be three times age of his son. Five years ago father was seven times as old as his son. Find their present ages.
12. Five years ago, Neeta was thrice as old as Gita. Ten years later, Neeta will be twice as old Gita. How old are Gita & Neeta now?

BY: AJAI KUMAR SHUKLA

RACHNA TUTORIALS

6/1003 JANKIPURAM VISTAR LUCKNOW

CLASS X MATHS TEST

1. **If two zeroes of the polynomials are $x^4-6x^3-26x^2+138x-35$are $2\pm\sqrt{3}$, find the other zeroes.**
2. **On dividing x^3-3x^2+x+2 by polynomials g(x), the quotient & remainder were x-2 & -2x+4 respectively. Find g(x).**
3. **If the polynomials $x^4+2x^3+8x^2+12x+18$ is divided by another polynomial x^2+5, the remainder comes out to be p x +q. Find the values of p and q .**
4. **Prove that $\sqrt{2}$ is not a rational number.**
5. **Find the values of m and n for which the following system of equations has infinitely many solutions: 3x+4y = 12; (m + n)x +2(m-n)y=5m-1**
6. **Solve for x & y: x/a +y/b =1 ; a(x-a) – b(a + b)=$2a^2+b^2$**

7. **Solve for x & y: b x/a +ay/b = a^2+b^2; x+ y =2ab.**
8. **Solve for x & y: x/a – y/b = a-b; ax +by = $a^3 + b^3$**
9. **Solve for x & y: 3(2x + y) = 7xy ; 3(x +3y) = 11xy.**
10. **Solve for x & y: 3/(x + y) + 2/(x – y) =2 ; 9/(x +y) + 4/(x- y) = 1;(x + y) ≠0 (x - y) ≠0**
11. **A two digit number is obtained by either multiplying the sum of the digits by 8 & adding 1, or by multiplying the difference of the digits by 13 & adding 2. Find the number. How many such numbers are there?**
12. **The difference between two numbers is 15 &the difference between their squares is 465. Find the numbers.**
13. **In a rectangle if length is increased by 7 units & breadth is decreased by 3 units or if length is decreased by 7 units & breadth is increased by 5 units, in both the cases the area remains same. Find the dimensions of the rectangle. Also find the area of the rectangle.**
14. **A fraction is such that if the numerator is multiplied by 3 & denominator is reduced by 3, we get 18/11, but if the numerator is increased by 8 & denominator is doubled, we get 2/5. Find the fraction.**
15. **Solve(By Cross-Multiplication)**
    (a – b) x + (a+ b)y = a^2-2ab-b^2;
    (a + b)(x + y) = $a^2 + b^2$

BY: AJAI KUMAR SHUKLA

RACHNA TUTORIALS

6/1003 JANKIPURAM VISTAR LUCKNOW

(9453292712,8858876001)

CLASS X MATHS TEST (REAL NUMBERS, POLYNOMIALS)

Choose the correct option: EACH QUESTION 1 MARKS (SECTION A)

1. **Every positive even integer is of the form: i) q ii)2q iii)2q+1 iv)2q-1**
2. **Every positive odd integer is of the form i) q ii)2q iii)2q+1 iv)2q-1**
3. **Decimal representation of an irrational number is always: i)non-terminating ,non-repeating ii)terminating iii) repeating iv)non-terminating, repeating**

4. n^2-1 is divisible by 8, if n is : i)an odd integer ii)an integer iii) a natural number iv)an even integer
5. According to Euclid's division algorithm using Euclid's division lemma for any two positive integers a & b with a>b enables us to find: i)HCF ii)LCM iii)DECIMAL EXPANSION iv)PROBABILITY
6. Sum of the zeroes of a quadratic polynomial p(x)= ax^2+bx+c is given by: i) c/a ii) a/c iii)-b/a iv) –a/b
7. The degree of the polynomial $(x+1)(x^2-x-x^4+1)$ is: i)2 ii) 3 iii)4 iv)5
8. The quadratic polynomials whose sum of zeroes is +3 & product of zeroes is +2 is: i)x^2+3x-2 ii)x^2-2x+3 iii) x^2-3x+2 iv)x^2-3x-2
9. If -4 is a zero of the polynomial $x^2-x-(2+2k)$, then the value of k is: i) -4/3 ii)4/3 iii)2/3 iv) -2/3
10. The Q.P. p(y), the sum of whose zeroes is -15 & one zeroes is -7, is : i) $y^2-15y-56$ ii) $y^2+15y+56$ iii)$y^2+15y+54$ iv)$y^2+15-56$

Note: EACH QUESTION 3 MARKS (SECTION B)

11. Prove that $\sqrt{5}$ is irrational.
12. Show that $(4-\sqrt{3})$ is irrational.
13. Divide $30x^4+11x^3-82x^2-12x+48$ by $(3x^2+2x-4)$ & verify the result by division algorithm.
14. Prove that $3+\sqrt{5}$ is an irrational number.
15. Find a Q.P. the sum of whose zeroes is 7 & their product is 12. Hence find the zeroes of the polynomials.
16. Find all the zeroes of the polynomials $x3+3x^2-2x-6$, if two of its zeroes are $-\sqrt{2}$ & $\sqrt{2}$.
17. If α, β are the zeroes of the polynomials, such that $\alpha+\beta=6$ $\alpha\beta=4$, then write the polynomials.
18. For what value of k, will the following system of linear equations have infinitely many solutions? 2x+3y=4 & (k+2)x+6y=3k+2.
19. Determine a & b for which the following system of linear equations has infinite number of solutions 2x-(a-4)y=2b+1; 4x-(a-1)y=5b-1.
20. If 6years hence a man's age will be 3times the age of his son & three years ago he was 9times as old as his son, find the present age of the man?

BY: AJAI SHUKLA

6/1003 JANKIPURAM VISTAR LKO.9453292712

MATHEMATICS

Max Marks – 40 CLASS X SECTION A (EACH Q. 1 MARKS) Time – 1 ½ hours.

1. **Find the roots of the equation $3x^2 - 5x + 2 = 0$**
2. **Find the values of k for which the equation $(k+1)x^2 - 2xk+2x+1=0$ has real & equal roots?**
3. **If the sum of first m terms of an A.P. is n & the sum of its first n terms is m, then find the sum of its first (m + n) terms?**
4. **Write the formula for sum of first n terms of an A.P. whose first term is a & the last is l?**
5. **Find the sum of first 15 terms of an A.P. whose nth term is 9 – 5n**
6. **A point T is 13 cm away from the centre of a circle. The length of the tangent drawn from T to the circle is 12 cm. Find the radius of the circle.**
7. **Find the length of the tangent drawn from a point P whose distance from the centre of the circle is 25cm. It is given that radius of the circle is 7cm.**
8. **What is the distance between the points A(c, 0) & B(0,-c)?**
9. **Find x if the distance between the points (x ,2) & (3,4) be 8 units.**
10. **Find the mid-point of the line segment joining the points (4, 3) & (-2,1).**

SECTION "B" (EACH Q. 3 MARKS)

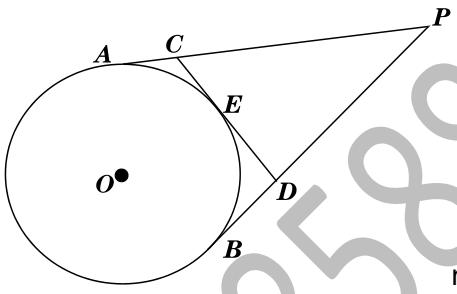
11. **A vertical flagstaff stands on a horizontal plane. From a point 200m from its foot, the angle of elevation of its top is found to be 30^0.Find the height of the flagstaff.**
12. **The upper part of a tree broken over by the wind makes an angle of 30^0 with the ground and the distance of the root from the point where the top touches the ground is 25 m. What was the height of the tree**
13. **An observer 1.5 m tall is 28.5 m away from a tower 30 m high. Determine the angle of elevation**
14. **Prove that the angle between the two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line segment joining the point of contact at the centre.**
15. **If all the sides of a parallelogram touch a circle, then show that the parallelogram is a rhombus.**
16. **The 8^{th} term of an A.P is zero. Prove that its 38^{th} term is triple of its 18^{th} term.**
17. **Which term of the A.P.5,9,13, is 81? Find also the sum of 5+9+13+--------+81.**
18. **The sum of the squares of two numbers is 130. The sum of the smaller number and twice the larger number is 25. Find the numbers.**
19. **The sum of age of a son & his father is 35 & the product of their ages is 150. Find their ages.**
20. **Find two consecutive numbers whose squares have the sum 85.**

RACHNA TUTORIALS

6/1003 JANKIPURAM VISTAR LUCKNOW

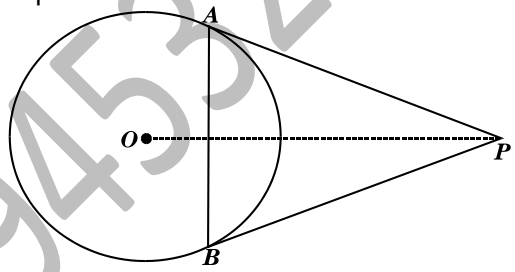
1. Which term of AP : 3, 8, 13, 18, ..., is 78?

2. From an external point P, tangents PA and PB are down to a circle with centre O. If CD is the tangent to the circle at a point E and PA=14cm, find the perimeter of



3. How many lead balls, each of radius 1cm, can be made from a sphere ofradius 8cm?

4. Find the probability that a number selected at random from the numbers 1 to 25 is not a prime number when each of the given numbers is equally likely to be selected.
5. If the point P(x, y) is equidistant from the points A (5, 1) and B (–1, 5), prove that 3x = 2y.
6. There are 35 students in a class of whom 20 are boys and 15 are girls. From these students one is chosen at random. What is the probability that the chosen student is a (i) boy (ii) girl?
7. A card is drawn at random from a well-shuffled pack of 52 cards. Find the probability that the card drawn is neither a red card nor a queen.
8. The first term of an AP is 5, the last term is 45 and the sum is 400. Find the number of terms and the common difference.
9. Prove that the points A(–3, 0), B(1, –3) and C(4, 1) are the vertices of an isosceles right-angled triangle. Find the area of this triangle.
10. From a point P, two tangents PA and PB are drawn to a circle C(O, r). If OP = 2r, show that APB is equilateral.



11. Metallic spheres of radii 6cm, 8cm and 10cm, respectively, are melted to form a single solid sphere. Find the radius of the resulting sphere.
12. The angle of elevation of the top of a building from the foot of the tower is 30º and the angle of elevation of the top of the tower from the foot of the building is 60º. If the tower is 50m high, find the height of the building.
13. From the top of a 7m high building, the angle of elevation of the top of a cable tower is 60º and the angle of depression of its foot is 45º. Determine the height of the tower.

14. A solid is composed of a cylinder with hemispherical ends. If the whole length of the solid is 104 cm and the radius of each of its hemispherical ends is 7 cm, find the cost of polishing its surface at the rate of Rs. 10 per dm^2.

MathsTest$_2$ SA(II) Class X TIME 1.30Hrs. M.M.30

1. **Using distance formula, prove that the points (0, 0), (2,3) & (6,9 lie on a straight line.**
2. **Find the ratio in which the line segment joining the points A (1, - 5) and B (- 4, 5) is divided by the x-axis. Also find the coordinates of the point of division.**
3. **The line segment joining the points (-6,8) & (8,-6) is divided into 4 equal parts. Find the coordinates of the points of section.**
4. **From the top of a 7m high building, the angle of elevation of the top of a tower is 60^0 & the angle of depression of the foot of the tower is 30^0. Find the height of the tower.**
5. **The angle of elevation of jet fighter from a point on the ground is 60^0. After a flight of 15sec. the angle of elevation changes to 30^0.If the jet is flying at a speed of 720km/hr, find the constant height at which the jet is flying.**
6. **The angle of depression of the top & bottom of a tower, as seen from the top of a 100m high cliff, are 30^0 & 60^0 respectively. Find the height of the tower.**
7. **The circumference of a circular plot is 220m. A 14m wide track runs around outside the plot. Find the area of track.**
8. **The inner circumference of a circular track is 440m. The track is 14cm wide. Find the cost of leveling it at 20 paise/sq m. Also find the cost of putting up a fencing along outer circle at Rs2/m.**
9. **A playground has the shape of a rectangle with two semi-circles on its smaller sides as diameter added to it outside. If the sides of the rectangle are 36m & 24.5m, find the area of the playground.**

10. **If the 21st term of an A.P. is 25, find the sum of its first 41 terms.**

11 The first term of an A.P. is 5, the last term is 45 & the sum is 400. Find the number of terms & the common difference.

12 A rectangular field is 20m long & 14m wide. There is a road of equal width all around it. It the area her boat at 5km/h in still water. If she takes 1 hr more to row the of the road is 72sq m, find the width of the road.

13 Meeta can row her boat at 5km/hr in still water. If she takes 1hr more to row the boat 5.25km upstream than to return downstream, find the speed of the stream.

14 For what value of k does $(k- 12)\ x^2 +2(k-12)x + 2 = 0$ have equal roots?

15 Solve for x each : (a)$x^2 – 8x + 16 = 0$ (b)$2x^2 + (p^2 – q^2)x\ q^2 = 0$

BY: AJAI KR SHUKLA

RACHNA TUTORIALS

6/1003 JANKIPURAM VISTAR LKO.9453292712

MATHEMATICS

Max Marks – 40 CLASS X SECTION A (EACH Q. 1 MARKS) Time – 1 ½ hours.

21. Find the roots of the equation $3x^2 -5x + 2 = 0$
22. Find the values of k for which the equation $(k+1)\ x^2 – 2xk+2x+1=0$ has real & equal roots?
23. If the sum of first m terms of an A.P. is n & the sum of its first n terms is m, then find the sum of its first (m + n) terms?
24. Write the formula for sum of first n terms of an A.P. whose first term is a & the last is l?
25. Find the sum of first 15 terms of an A.P. whose nth term is 9 – 5n
26. A point T is 13 cm away from the centre of a circle. The length of the tangent drawn from T to the circle is 12 cm. Find the radius of the circle.
27. Find the length of the tangent drawn from a point P whose distance from the centre of the circle is 25cm. It is given that radius of the circle is 7cm.
28. What is the distance between the points A(c, 0) & B(0,-c)?
29. Find x if the distance between the points (x ,2) & (3,4) be 8 units.
30. Find the mid-point of the line segment joining the points (4, 3) & (-2,1).

SECTION "B" (EACH Q. 3 MARKS)

31. A vertical flagstaff stands on a horizontal plane. From a point 200m from its foot, the angle of elevation of its top is found to be 30^0.Find the height of the flagstaff.

32. **The upper part of a tree broken over by the wind makes an angle of 30^0 with the ground and the distance of the root from the point where the top touches the ground is 25 m. What was the height of the tree**
33. **An observer 1.5 m tall is 28.5 m away from a tower 30 m high. Determine the angle of elevation**
34. **Prove that the angle between the two tangents drawn from an external point to a circle is supplementary to the angle subtended by the line segment joining the point of contact at the centre.**
35. **If all the sides of a parallelogram touch a circle, then show that the parallelogram is a rhombus.**
36. **The 8^{th} term of an A.P is zero. Prove that its 38^{th} term is triple of its 18^{th} term.**
37. **Which term of the A.P.5,9,13, is 81? Find also the sum of 5+9+13+--------+81.**
38. **The sum of the squares of two numbers is 130. The sum of the smaller number and twice the larger number is 25. Find the numbers.**
39. **The sum of age of a son & his father is 35 & the product of their ages is 150. Find their ages.**
40. **Find two consecutive numbers whose squares have the sum 85.**

RACHNA TUTORIALS

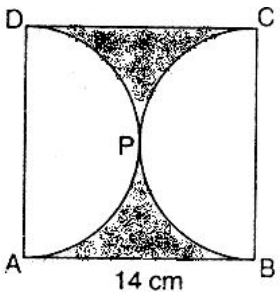
6/1003 JANKIPURAM VISTAR LKO.9453292712

MATHEMATICS

1 Determine the ratio in which the points P (m, 6) divides the join of A (-4, 3) and B (2, 8). Also find the value of m.

2 Find the value of p for which the points (-1, 3), (2, p) and (5,-1) are collinear.

3 In given figure, ABCD is a square whose each side is 14 cm. APD and BPC are semicircles. Find the area of the shaded region.



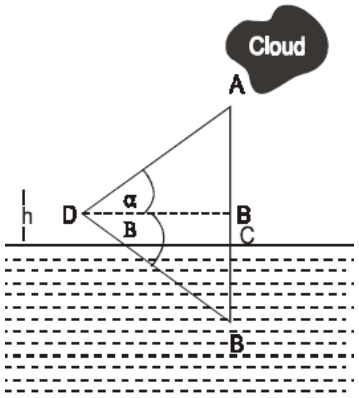
4 The sum of the digits of two digits number is 9. Also, nine times this number is twice the number obtained by reversing the order of the digits of the number Find the number.

5 A motor boat whose speed is 15km/hr in still water , goes 30km downstream and comes back in a total time of 4 hours 30 minutes. Find the stream

6 State and prove Pythagoras Theorem. Using it, if ABC is a triangle in which AB = AC and D is any point in BC, Prove that: AB2--AD2=BD.CD

7 If the angle of elevation of a cloud from a point h meters above a lake is α and the angle of depression of its reflection in the lake is β, prove that the distance of the cloud from the point of observation is

$$\frac{2h \sec \alpha}{\tan \beta - \tan \alpha}$$



8 The length of a tangent from a point A at a distance of 5 cm from the center of the circle is 4 cm. What will be the radius of the circle?

9 A card is drawn at random from a well-shuffled deck of 52 cards.Find the probability that it is neither an ace nor a queen.

10 The minute hand of a clock is 10 cm. long. Find the area on the face of the clock described by the minute hand in 10 minutes.

11 From the top of a church spire 96 m high the angles of depression of two vehicles on a road, at the same level as the base of the spire and on the same side of it are x° and y°, where tan x° = 1/4 and tan y° = 1/7. Calculate the distance between the vehicles.

12 Water flows out through a circular pipe, whose internal diameter is 2cm, at the rate of 0.7m per second into a cylindrical tank, the radius of whose base is 4cm. By how much the water level will rise.

13 A conical vessel of radius 6 cm and height 8 cm is completely filled with water. A sphere is lowered in to water and its size is such that when it touches the sides, it is just immersed. What fraction of water overflows?

14 If the point (x, y) is equidistant from the points (a +b, b-a) and (a-b, a+b,)prove that b x =ay.

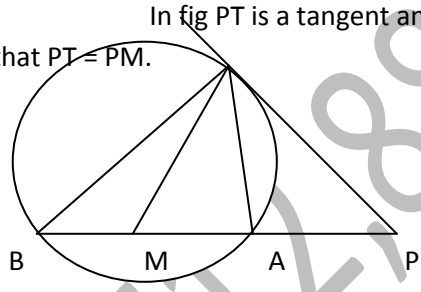
15 Determine the ratio in which the point (-6,a) divides the join of A(-3,-1) and B(-8,9). Also find the value of a.

16 Find the area of the triangle ABC formed by joining the mid-points of the sides of the triangle whose vertices are A(4, -6), B(3, -2) and C (5, 2).

17 Determine the ratio in which the point (-6,a) divides the join of A(-3,-1) and B(-8,9). Also find the value of a.

18 A vertical tower is surmounted by a flagstaff of height h meters. At a point on the ground, the angles of elevation of the bottom and top of the flagstaff are α and β respectively. Prove that height of the tower is $\frac{h\tan\alpha}{\tan\beta-\tan\alpha}$.

19 In fig PT is a tangent and PAB is a secant of the circle. If the bisector of *L*ATB Intersects AB at M, Prove that PT = PM.



20 A vessel is in the form of an inverted cone which is open at the top. Its depth is 8cm and the radius of its top is 5 cm. It is filled with water up to the brim. When lead shots, each of which is a sphere of radius 0.5cm are dropped into the vessel, one fourth of the water flows out. Find the number of lead shots dropped in the vessel.

RACHNA TUTORIALS

(6/1003 Jankipuram Vistar, Near Delhi Public School Lucknow)
Mob.9453292712,9415467421

Class X (A.P.)Mathematics

1. Find the sum of 20 terms of the A.P. 1,4,7,10.....
2. If the nth terms of an A.P is (2n + 1), find the sum of first n terms of the A.P.

3. Find the sum of first 30 terms of an A.P.whose second term is 2 and seventh term is 22.
4. Find the sum of first 10 terms of an A.P., in which 3rd term is 7 and 7th term is two more than thrice of its 3rd term.
5. Find the sum of all even integers between 2 to 100 divisible by 2.
6. Find the number of terms in the series 20, 19 *1/3* + 18 *2/3* +.....of which the sum is 300,explain the double answer.
7. If the mth term of an A.P. is 1/n and the nth terms is 1/m, show that the sum of mn terms is ½(nm + 1).
8. If the sum of n terms of an A.P.is same as the sum of its n terms, show that the sum of its (m + n) terms is zero.
9. Find the sum of first n odd natural numbers.
10. If the 8th terms of an A.P.is 31 and the 15th terms is 16 more than the 11th terms find the sum of first 20 terms.
11. How many terms of A.P.: 24,21,18,..... Must be taken so that their sum is 78?
12. The angles of a triangle are in AP.If the greatest angle equals the sum of the other two, find the angles.
13. Find the sum of two digits numbers, which are divisible by 7?
14. Find the sum of number b/t 49 to 500 which are divisible by 7?
15. If the pth term of an A.P.is q and the qth term is p, prove that its nth term is (p + q – n) and find the sum of first (p+q)th term .
16. How many terms of the sequence 18,16,14..... should be taken so that their sum is zero.
17. Write the first 5 terms of an AP whose nth term is given by (2n+1)/3.
18. How many terms in the sequence -6 , -11/2 , -5 , -9/2 , ...are needed to give the sum 0 ?
19. Find the sum of all the natural numbers less than 100 which are divisible by 6.
20. The sum of n terms of an A.P.; be 3n2 – n and its common difference is 6,find its first and 27th term.
21. The sum of nth terms of an A.P. is $3n^2$+ 5n, then find its nth term.
22. Find the sum of first 21 terms √2 + √8 + √18 + √32.....
23. Find the sum of 20 terms of the A.P. 1,4,7,10.....
24. If the nth terms of an A.P is (2n + 1), find the sum of first n terms of the A.P.
25. Find the sum of first 30 terms of an A.P.whose second term is 2 and seventh term is 22.
26. Find the sum of first 10 terms of an A.P., in which 3rd term is 7 and 7th term is two more than thrice of its 3rd term.
27. Find the sum of all even integers between 2 to 100 divisible by 2.
28. Find the number of terms in the series 20, 19 *1/3* + 18 *2/3* +.....of which the sum is 300,explain the double answer.
29. If the mth term of an A.P. is 1/n and the nth terms is 1/m, show that the sum of mn terms is ½(nm + 1).
30. If the sum of n terms of an A.P.is same as the sum of its n terms, show that the sum of its (m + n) terms is zero.
31. Find the sum of first n odd natural numbers.
32. If the 8th terms of an A.P.is 31 and the 15th terms is 16 more than the 11th terms find the sum of first 20 terms.
33. How many terms of A.P.: 24,21,18,..... Must be taken so that their sum is 78?
34. The angles of a triangle are in AP.If the greatest angle equals the sum of the other two, find the angles.
35. Find the sum of two digits numbers, which are divisible by 7?
36. Find the sum of number b/t 49 to 500 which are divisible by 7?
37. If the pth term of an A.P.is q and the qth term is p, prove that its nth term is (p + q – n) and find the sum of first (p+q)th term .
38. How many terms of the sequence 18,16,14..... should be taken so that their sum is zero.
39. Write the first 5 terms of an AP whose nth term is given by (2n+1)/3.
40. How many terms in the sequence -6 , -11/2 , -5 , -9/2 , ...are needed to give the sum 0 ?
41. Find the sum of all the natural numbers less than 100 which are divisible by 6.
42. The sum of n terms of an A.P.; be 3n2 – n and its common difference is 6,find its first and 27th term.
43. The sum of nth terms of an A.P. is $3n^2$+ 5n, then find its nth term.
44. Find the sum of first 21 terms √2 + √8 + √18 + √32.....

RACHNA TUTORIALS

(6/1003 Jankipuram Vistar, Near Delhi Public School Lucknow)

Time -1Hr M.M. -30 (CLASSX)

1 A number is chosen from 1 to 20. Find the probability that the number chosen is :(*i*) a prime number (*ii*) a composite number(*iii*) a square number (*iv*) an odd number(*v*) an even number (*vi*) number between 7 and 14

2. A bag contains 9 red and 6 blue balls. Find the probability that a ball drawn from a bag at random is (*i*) Red ball (*ii*) blue ball

3. In a sample of 500 items, 120 are found to be defective. Find the probability that the item selected at random is (*i*) Defective (*ii*) non-defective

4. In a school of 1800 students, there are 875 girls. Find the probability that a student chosen at random is (*i*) a boy (*ii*) a girl

5. In a cricket match, a batsman hit a boundary 12 times out 45 balls he plays. Find the probability that he did not hit a boundary.

6. A coin is tossed 700 times and we get head : 385 times; tail : 315 times. When a coin is tossed at random, what is the probability of getting: (*i*) a head? (*ii*) a tail?

7. Two coins are tossed 600 times and we get two heads: 138 times, one head : 192 times ; no head : 270 times. When two coins are tossed at random, what is the probability of getting?(*i*) 2 heads? (*ii*) 1 head? (*iii*) no head?

8. Three coins are tossed 250 times and we get: 3 heads : 46 times; 2 heads : 56 times; 1 head : 70 times; 0 head : 78 times. When three coins are tossed at random, what is the probability of getting :(*i*) 3 heads ? (*ii*) 2 heads? (*iii*) at least 2 heads? (*iv*) atmost 2 heads?

9. A die is thrown 300 times and the outcomes are noted as given below :Frequencies 58 75 52 39 42 34Outcomes 1 2 3 4 5 6When a die is thrown at random, what is the probability of getting a: (*i*) 4 (*ii*) 6 (*iii*) number less than 3 (*iv*) number which is prime

10. In a survey of 350 ladies, it was found that 235 like coffee, while rest of them dislike it. Find the probability that a lady chosen at random:(*i*) likes coffee (*ii*) dislikes coffee.

11. On one page of a telephone directory, there are 200 phone numbers. The frequency distribution of their units digit is given below : Frequency 21 20 21 21 22 25 22 17 15 16 Units digit 0 1 2 3 4 5 6 7 8 9 One of the numbers is chosen at random from the page. What is the probability that the units digit of the chosen number is (I) 5 (*ii*) 8 (*iii*) an even number (*iv*) an odd number

Paper Submitted By:

Name : AJAI KUMAR SHUKLA
Email : ajaishukla89@gmail.com
Phone No. +91-9415467421

(6/1003 jkp. Vistar,Near Delhi Public School Lucknow)