DELHI PUBLIC SCHOOL, JAMMU
Sample questions for Term Exam (2019 – 2020)
(as per the pattern of CBSE sample paper)
Sub:- Mathematics
Class:- IX
SECTION-A (Objective type) (1marks)

1) The length of the hypotenuse of an isosceles right triangle whose one side is $4\sqrt{2}$ cm is

a) 12 cm b) 8 c) $8\sqrt{2}$ cm d) $12\sqrt{2}$ cm

2) The line drawn from the mid-point of one side of a triangle is parallel of another side _____ the third side.

3) The lengths of the diagonals of a rhombus are 24 cm and 32 cm. The perimeter of the rhombus is

a) 9 b) 128 c) 80 d) 56

4) Figure of same size and same shape are _____ and _____ also.

5) If a pair of adjacent sides of rectangle are equal then it is a _____

a) Rhombus b) Square c) Parallelogram d) Kite

6) The maximum number of zeroes in a cubic polynomial is .....

7) Find the coefficient of x^2 in $(3x^2-5)(4+4x^2)$.

8) Which of the following is a rational number?

a. $1+\sqrt{3}$

b. $\prod$

c. $2\sqrt{3}$

d. d.0

9) The value of the polynomial x^2-x-1 at $x=-1$ is:

a. -3

b. b.1

c. -1

d. d.0

10) A polynomial of degree n has atmost

a. n terms

b. n+1 terms

c. n+2 terms

d. none of these.

11) In a school of 1300 students, there are 675 girls and the rest are boys. Find the probability that a student chosen at random is:

i) a boy and ii) a girl

12) A big trunk contains 150 red and 200 black balls. Find the probability that a ball drawn at random is a black ball.

13) An integer is chosen from 1 to 100. Find the probability that the integer chose in a prime number.

14) In a sample of 750 items, 85 are found defective. Find the probability that the item selected at random is:

i) Defective and ii) Not defective

15) In a cricket match, a batsman hits a boundary 8 times out of 40 balls he plays. Find the probability that he did not hit a boundary.

16) Find the area of triangle formed by the points A (2, 0), B (6, 0) and C (4, 6).

17) The perpendicular distance of the point A (5, 5) from X-axis is ----------

18) Sum of ordinates of points P, Q and R having coordinates (-8,-5), (3, -2) and (16, +11) is ----------

19) The ordinate of any point on x-axis is ----------

20) Find the distance of a point P (4, 3) from origin

21) The length of each side of an equilateral triangle of area 4 3 cm^2 is

a. 4cm b. 4.5 cm c. 8 cm d. 3 cm.

22) The sides of a right triangle are 3cm,4cm and 5cm.Find its area.

23) The area of an equilateral triangle of side 12 cm is _____

24) If area of an isosceles right triangle is 8 cm. What is the perimeter of triangle ?

25) Find the area of triangle whose base and altitude are 5cm and 4am respectively.

26) Find mode and median of data

51,14,71,15,91,2,51,19,41,51,18,15,51.

27) Graph of linear equation is always_____.

28) Represent 2x + 7 = 0 in Cartesian plane.

29) Find the value of K, if (2,1) is solution of equation 2x+3y=k . find three more solutions for the equation obtained.

30) Find the angle which is five times its complement.

31) Find the angle which is four times its supplement.

32) Find the measure of an angle which is equal to its complement.

33) Find the measure of an angle if seven times its complement is 10°less than 3 times its supplement.

34) Two supplementary angles are in the ratio 2:3. Find the angles.

SECTION-B (Very short type questions) (2marks)

1) Prove that angle opposite to equal sides of isosceles triangle are equal.
2) Show that in a right angles triangle, the hypotenuse is the longest side.
3) Prove that a diagonal off a parallelogram divides it into two congruent triangles.
4) Evaluate using identities:
   i. a. 103 X 96 b. 52 X 57
5) Find an irrational number between $\sqrt{3}$ and $\sqrt{5}$.
6) Represent 2.1131313.... in the form of p/q, where p and q are integers and $q \neq 0$.
7) If the lateral surface area of a cylinder is 94.2 sq cm and its height is 5 cm, find the volume of the cylinder (use $\pi = 3.14$).
8) How much concrete mixture will be required to build 10 pillars of a building, if each pillar has a circular base of radius 20 cm and height 14 m?
9) The capacity of a closed cylindrical vessel of height 1 m is 15.4 litres(1 litres=1000 cu cm). How many square centimetres of metal sheet will be needed to make it?
10) Plot the points A (0, 5), B (3,5), C(3,0) and D (0,0) and shade the area formed by joining these points.
11) In which quadrant do the following points lie?
   i. A(-8,4), B(4,3), C(-5,5), and D(6,-7).
12) Check whether area formed by joining these points is 4 square units or not. Also shade the area of figure formed. P (0, 1), Q (0, 5) and R (3, 4).
13) Find the area of triangle whose sides are 150cm,120cm and 200cm.
14) The perimeter of a triangle is 540m and its sides are in the ration 25:17:12. Find the area of triangle.
15) Find the area of rhombus whose perimeter is 80 m and one of the diagonal is 24m.
16) Find the area of triangle whose sides are 150cm,120cm and 200cm.
17) The perimeter of a triangle is 540m and its sides are in the ration 25:17:12. Find the area of triangle.
18) Find the area of rhombus whose perimeter is 80 m and one of the diagonal is 24m.
19) A wire is looped in the form of a circle 28 cm. If it is reverted into a square form.

Determine the side of square.

20) Two tangents PA and PB are drawn to the circle with centre O, such that □APB = 120°, Prove that Op = 2AP.

21) Draw a line segment of length 8 cm and divide it in the ratio 3:2 measure the two parts.

22) Evaluate using identities:

a. 103 X 96 b. 52 X 57

23) Find an irrational number between $\sqrt{3}$ and $\sqrt{5}$.

24) Represent 2.1131313.... in the form of p/q, where p and q are integers and $q \neq 0$.

25) Represent 2x + 7 = 0 in Cartesian plane.

26) Find the value of K, if (2,1) is solution of equation 2x+3y=k . find three more solutions for the equation obtained.

27) If 12 is median of 3,4,6,8,x+2,2x+1,16, 19,20,22. Find x

28) If the lateral surface area of a cylinder is 94.2 sq cm and its height is 5 cm, find the volume of the cylinder (use $\pi = 3.14$).

29) How much concrete mixtured 10 pillars of a building, if each pillar has a circular base of radius 20 cm and height 14 m?

30) The capacity of a closed cylindrical vessel of height 1 m is 15.4 litres (1 litres=1000 cu cm). How many square centimetres of metal sheet will be needed to make it?

SECTION-C (Short type questions) (3marks)

1) Prove that the intercept of a tangent between two parallel tangents to a circle subtends a right angle at the centre.

2) Construct a triangle with sides 4cm, 5cm and 6cm and then another triangle whose sides are 8/5 of the corresponding sides of thee first triangle.

3) A steel wire when bent in the form of a square encloses an area 121 cm^2. If the same wire is bent into the form of a circle, find thee area of circle.

4) Construct an isosceles triangle whose base is 8cm and altitude 5cm and then another triangle whose sides are 4/3 times the corresponding sides of the isosceles triangle.

5) Factorise x^8-y^8.

6) Visualise 3.284 on the number line.

7) If $(5)^{x-3}$ X $(3)^{2x-8}$ =225, find the value of x.

8) Expand $(4a-2b-3c)^2$.

9) Plot A(0,2), B(-2.5,0) and C(3.5,0) in graph and find area of triangle ABC.

10) A village having a population of 4000, requires 150 litres of water per head per day. It has a tank measuring 20 m x 15 m x 6 m. For how many days will the water of this tank last?

11) A women has a piece of canvas whose area is 551 sq m. She uses it to have a conical tent made, with a base radius of 7 m. Assuming that all the stitching margins and the wastage incurred while cutting amounts to approximately 1 sq. m, find the volume of the tent that can be made with it.

12) A dome of a building is in the form of a hemisphere. From inside, it was whitewashed at the cost of ì 498.96. if the cost of whitewashing is ì 2 per square metre, find the inside surface area of the dome and volume of the air inside the dome.

13) P (4, 5), Q (-6, 7), R (-1,O) and S (-2,8) are points in a Cartesian plane. Find the product of Abscissa of given points and subtract the sum of ordinates from it.

14) Form a square in a Cartesian plane whose two opposite vertices are (0,0) and (4,4). Also find the Coordinates of other Vertices.

15) Plot the points (0,6), (-5,0) and (4,0) in a Cartesian plane . Join these points. Find the area of figure thus obtained.

16) Abscissa and ordinates of points A,B,C,D are -6,4,-8, 2 and 5,-3,4,7. Plot these points. Shade the region formed by joining these points. Name the figure thus obtained.

17) The length of each side of an equilateral triangle are 5cm, 12cm and 13cm. Find the length of its longest altitude.

18) An Isosceles triangle has Perimeter 30cm and each of equal side is 12cm. Find the area of triangle.

19) A Kite is in the shape of a square with diagonal 32cm and an Isosceles triangle of base 8cm, and sides 6cm, each is to be made of three different shades . How much paper of each shade is used?

20) The sides of a quadrangular field taken in order are 26m, 27m, 7m and 24m respectively. The angle contained by last two sides is a right angle. Find its area.

21) Given below are the seats won by different political parties in a poll.

22) Draw bar graph.

Political party	A	B	C	D	E	F
Seats won	75	55	37	29	10	35

23) If force exerted to pull a cart is directly proportional to the acceleration produced in the

body. Express the situation in the form of linear equation taking constant mass equal to 6 kg. Also draw graph for the situation.

SECTION-D (Long Type) 4 marks

1) Represent $\sqrt{7.2}$ on number line. Give its justification.
2) Find the value of m so that 2x-1 is a factor of $8x^4+4x^3-16x^2+10x+m$.
3) If $x+\frac{1}{x}=7$,then find the value of $x^3+\frac{1}{x^3}$.
4) For given data construct frequency polygon.

Number of letters	1-5	6-10	11-15	16-20	21-25
Number of surnames	6	30	40	16	4

Or

For given data construct histogram.

Number of letters	1-4	4-6	6-8	8-12	12-20
Number of surnames	6	30	44	16	4

5) The auto fare in a city is charged Rs 10 for first kilometre and Rs 4 for the subsequent
6) distance covered. Write linear equation for the situation . Also draw graph for the situation.
7) Join Points (1,0), (3,3), (6,3) and (7,0) in Cartesian plane. Join to form a figure. Draw mirror image of figure through x-axis and find their area.
8) If the radius of the circular base of the right circular cone is doubled, find the ratio of the volume of the new cone to that of the original cone.
9) The circumference of the base of a 9 m high conical tent is 44 m. find the volume of the air contained in it.
10) The radius and the height of a right circular cone are in the ratio 5:12. If its volume 314 cu cm, find the slant height and the radius of the cone (Use π 3.14).
11) A circus tent is cylindrical up to a height of 3 m and conical above it. If the diameter of the base is 105 m and the slant height of the conical part is 53 m, find the total canvas used in making the tent.
12) Find the ratio of areas of triangles formed by joining the points A (4, 2) B (-3, 0), C (4, 0) and P (7, 6) , Q (-2,0) , C (6, 0).
13) Find the area of trapezium whose parallel sides are 25cm, 13cm, and non parallel sides are 15cm each.
14) Find the area of llgm having adjacent sides 13m and 14m and one of its diagonal is 16m. Find the cost of laying grass at the rate of Rs 15/$m^{2.}$

15) The perimeter of an Isosceles triangle is 42cm and its base is 3/2times each of equal sides. Find the length of each side of triangle , area of triangle and height of triangle.

16) The area of a circle inscribed in an equilateral triangle is 154cm^2. Find the perimeter of the triangle.

17) Draw a pair of tangents to a circle of radius 4 cm which are inclined to each other at an angle of 45°.

18) Prove that radius and tangents at point of contact are perpendicular to each other.