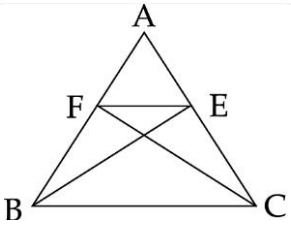
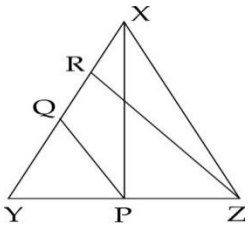
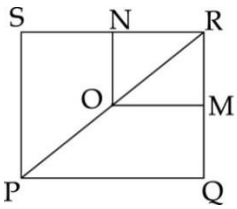
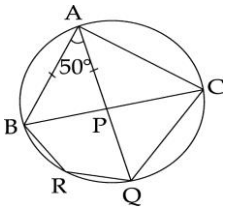
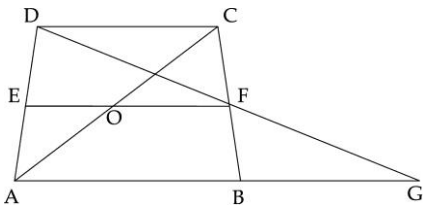
WORKSHEET ANNUAL EXAMINATION (2018-19)

CLASS IX

MATHEMATICS

1	If the graph of $2x \quad ky \quad 10$, intersects y-axis at (0, 2), then find k.
2	Find the coordinates of the point where the equation $2x+3y=12$ cuts $y-$axis.
3	Why we cannot construct a triangle of given sides as 5 cm, 5 cm and 10 cm ?
4	Calculate the edge of the cube if its volume is 1331 cm^3.
5	PQRS is parallelogram and T is any point on side SR. If ar (PTQ) = 10 cm^2, find ar (PQRS).
6	Using protractor, draw MON = 80°. Construct its bisector using compass and ruler.
7	 In the figure, E and F are mid points of sides AC and AB of ABC. If AB = 6 cm, BC = 8 cm and AC = 4 cm, find the length of EF.
8	Find the number of cubes of side 2 cm that can be cut from a cuboid of dimensions 5 cm × 4 cm × 2 cm.
9	Using appropriate identity, factorise $4x^2 - \frac{y^2}{9}$.
10	The probability of guessing the correct answer to a certain question is $\frac{x}{3}$. If the probability of not guessing the correct answer is $\frac{x}{5}$, then find the value of x.
11	Find the value of $(14641)^{0.25}$
12	Find the value of a, if the point (3, 4) lies on the graph of $ax-4y+10=0$. Also find the coordinates of the point on the graph for which $y=1$.
13	In XYZ, P is the mid – point on side YZ and Q is the mid-point of XY. If QR = RX, show that ar (XRZ) = ar (QYP) 

14	Prove 'Perpendicular from the centre of a circle to its chord bisects the chord'.
15	Construct an angle of measure 135° . Verify using a protractor.
16	In a quadrilateral PQRS, the bisectors of R and S meet at point T. Show that P + Q = 2 RTS.
17	If circumference of the base of a solid right circular cone is 236cm and its slant height is 12 cm, find its curved surface area.
18	What is the probability of occurrence of an even that is sure to happen ?
19	PQRS is a square. N and M are mid-points of sides SR and QR respectively. O is a point on diagonal PR such that OP = OR. Show that ONRM is a square. Also find the ratio of ar(ΔORM)and ar(PQRS). 
20	In the given figure, P is any point on the chord BC of a circle such that AB = AP. Prove that CP = CQ. If BAP = 50°, find CQP and BRQ. 
21	Construct QST, if its perimeter is 9.7 cm, S = 60° and T = 50°.
22	In the figure, ABCD is a trapezium in which AB||DC. E and F are the mid − points of AD and BC respectively. DF and AB are produced to meet at G. Also, AC and EF intersect at the point O. Show that : (i) EO||AB (ii) AO = CO 
23	In a group of 3 girls, one girl forgot to bring her lunch so, other two girls decided to share their lunch with her lunch box 1st girl lunch box is in the shape of a cuboidal box measures 6 cm × 8 cm × 15 cm and of 2nd girls lunch box is cylindrically shaped having radius 7 cm and height 15 cm. Which box has more volume? Which value is depicted by girls?
24	A cone has a volume of 1650 cm^3. If height of the cone is 28 cm, then find the radius, slant height and area of base of the cone.
25	It costs Rs. 2200 to paint the inner curved surface of a cylindrical vessel 10 m high at the rate of Rs. 20 per sq metre. Calculate the inner surface area and the capacity of the vessel.

26 If a metallic ball of radius 2.1 cm is put into a cylindrical cup full of water of radius 5 cm and height 7 cm, then how much water is remaining in the cylindrical cup ?

27 A right circular cone made of iron is of 8 cm height and has base radius 2 cm. It is melted and recast into a sphere. Determine the radius of the sphere.

28 If the diameter of the cross-section of a wire is decreased by 5%, how much percent should the length be increased, so that the volume remains the same ?

29 4 chairs and 3 tables cost ₹ 2100 and 5 chairs and 2 tables cost ₹ 1750. Find the cost of one chair and one table separately.

30 Jhanavi wants to make a rectangular park for children and others to play. The area of the park remains unchanged if its length is increased by 7 m and breadth is decreased by 3 m unit. Its area remains unaffected if the length is decreased by 7 m and breadth is increased by 5 m. Find the dimension of the park. Why did Jhanavi decide to make a park ?

31 Cards marked with the numbers 1 to 50 are placed in the box and mixed thoroughly. One card is drawn from this box. Find the probability that the number on the card is

(A) an even number.
(B) a number less than 14.
(C) a number, which is a perfect square.
(D) a prime number less than 20.

32 The scores (out of 100) obtained by 33 students in a mathematics test are as follows :
69, 48, 84, 58, 48,73, 83, 48, 66, 58, 84,
66, 64, 71, 64, 66, 69, 66, 83, 66, 69, 71,
81, 71, 73, 69, 66, 66, 64, 58, 64, 69, 69
Represent this data in the form of a frequency distribution.

33 The numbers 2, 3, 4, 4, $3x-1$, $3x+1$, 7, 7, 8 are written in ascending order. If the median is 5, find x. Hence find mode.

34 Draw the graphs of the following equations on the same graph sheet : $x-y=0$, $x+y=0$, $x=2$. Also, find the area enclosed between these lines.

35 The following table gives the pocket money (in Rupees) given to children per day by their parents

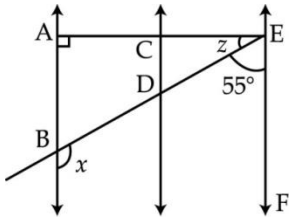
Pocket Money	0-10	10-20	20-30	30-40	40-50
No. of Children	12	23	35	20	10

Represent the data in the form of a historgram and frequency polygon.

36 Insert eight rational numbers between 2 and 3.

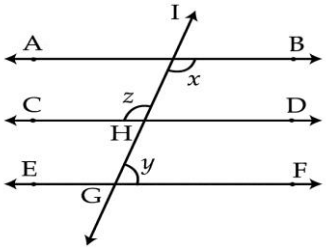
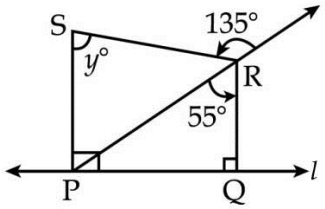
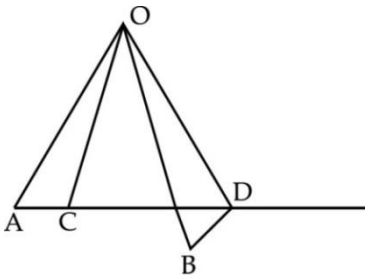
37 If $x=\frac{1}{2\sqrt{3}}$ is a zero of the polynomial $p(x) = 2kx^2 - 7x + k$, then find the value of k.

38 In the figure, AB||CD, CD||EF and EA AB. If BEF = 55°, find the values of x and z.



39 Plot two points A(5, 5) and B(−5, −5) on the graph paper. Draw line segment AB and find its mid – point.

40 The longest side of a right angled triangle is 125 m and one of the remaining two sides is 100 m. Find its area using Heron's formula.

41	Find three irrational numbers between $\frac{5}{7}$ and $\frac{9}{11}$.
42	If $p = 5 - 2\sqrt{6}$, find $p^2 - \frac{1}{p^2}$
43	If $a + b = 10$ and $a^2 + b^2 = 58$, find the value of $a^3 + b^3$.
44	If $x^2 + y^2 = 53$ and $xy = 14$, then find the value of $x^3 + y^3$.
45	Prove that if two lines intersect, vertically opposite angles are equal.
46	In the figure, if AB||CD, CD||EF and $x : y = 5 : 4$, find z. 
47	In the figure, if PS $\perp l$ and RQ $\perp l$, then find the measure of y : 
48	The lengths of two parallel chords of a circle are 6 cm and 8 cm. If the smaller chord is at a distance of 4 cm from the centre, what is the distance of the other chord from the centre ?
49	In the figure, OA = OB, OC = OD and AOB = COD. Prove that AC = BD. 
50	In an isosceles triangle LMN, LM = LN and MP and NQ are two medians. Show that MP = NQ.