

Do questions of only these chapters which are done in the class.

ASSIGNMENT

SUBJECT-MATH

CLASS-IX

- Insert 10 rational numbers between  $\frac{5}{6}$  and  $\frac{6}{7}$ .
- Represent the following rational numbers on number line  
 $\sqrt{5}, \sqrt{10}, \sqrt{17}, \sqrt{4.5}, \sqrt{8.5}$
- Express the following in the form of  $\frac{p}{q}$ .  
 (i)  $0.2\overline{5}$       (ii)  $1.00\overline{2}$       (iii)  $0.00\overline{63}$       (iv)  $2.0\overline{15}$
- Evaluate the following:  
 (i)  $(\frac{256}{81})^{\frac{5}{4}}$       (ii)  $(\frac{81}{16})^{-\frac{3}{4}} \times [(\frac{25}{9})^{\frac{3}{2}} \div (\frac{5}{2})^{-3}]$       (iii)  $[\{(625)^{-\frac{1}{2}}\}^{\frac{1}{4}}]^2$       (iv)  $\{(8^{\frac{1}{3}} + 27^{\frac{1}{3}})^{\frac{1}{4}}\}$
- Find the value of  $(\frac{x}{y})^{a+b} \times (\frac{x}{y})^{b+c} \times (\frac{x}{y})^{c+a}$
- Simplify :  $\frac{16x^2 - 4x^2}{16x^2 - 2x^2}$
- Rationalising the following denominators and simplify:  
 (i)  $\frac{5+\sqrt{6}}{5-\sqrt{6}}$       (ii)  $\frac{7+3\sqrt{5}}{7-3\sqrt{5}}$       (iii)  $\frac{2\sqrt{5}-\sqrt{5}}{2\sqrt{5}+3\sqrt{3}}$       (iv)  $\frac{5+2\sqrt{3}}{7-4\sqrt{3}}$
- In each of the following determine rational numbers a and b.  
 (i)  $\frac{3+\sqrt{7}}{3-\sqrt{7}} = a+b\sqrt{7}$       (ii)  $\frac{5+2\sqrt{3}}{7+4\sqrt{3}} = a+b\sqrt{3}$       (iii)  $\frac{\sqrt{2}+\sqrt{3}}{3\sqrt{2}-2\sqrt{3}} = a-b\sqrt{6}$
- Simplify : (i)  $\frac{3}{5-\sqrt{3}} + \frac{2}{\sqrt{5}+\sqrt{3}}$       (ii)  $\frac{4+\sqrt{5}}{4-\sqrt{5}} + \frac{4-\sqrt{5}}{4+\sqrt{5}}$   
 (iii)  $\frac{1}{2+\sqrt{3}} + \frac{2}{\sqrt{5}-\sqrt{3}} + \frac{1}{2-\sqrt{5}}$
- If  $x = 3+\sqrt{8}$ , find the value of  $x^2 + \frac{1}{x^2}$ .
- If  $a = 2 + \sqrt{3}$ , find  $a - \frac{1}{a}$ .
- Find the zeroes of the following polynomials:  
 (i)  $2x+3$       (ii)  $7x$       (iii)  $x^2-5$       (iv)  $x^2-9$
- If  $f(x) = 2x^2 - 13x + 12$ , then find  $f(0) + f(1) - f(2)$ .
- If  $p(x) = x^3 - 6x^2 + 11x - 6$ , then check that  $x=1, 2, 3$  are the zeroes of  $p(x)$  or not.
- Find the remainder when the polynomial  $f(x) = 2x^4 - 6x^3 + 2x^2 - x + 2$  is divided by:  
 (i)  $x+2$       (ii)  $x-\frac{1}{2}$       (iii)  $2x-3$       (iv)  $3x-1$
- If the polynomials  $ax^3 + 4x^2 + 3x - 4$  and  $x^3 - 4x + a$  leave the same remainder when divided by  $x-3$ , find the value of a.
- Show that  $x-3$  is a factor of the polynomial  $x^3 - 3x^2 + 4x - 12$ .
- Find the value of K if  $x+3$  is a factor of  $3x^2 + kx + 6$ .
- Determine the value of p for which the polynomial  $2x^4 - px^3 + 4x^2 + 2x + 1$  is divisible by  $1-2x$ .
- Factorise the following polynomials.  
 (i)  $6x^2 - 7x - 3$       (ii)  $5x^2 + x - 18$       (iii)  $x^3 + 6x^2 + 11x + 6$       (iv)  $2y^3 + y^2 - 2y - 1$
- Expand the following:  
 (i)  $(2a + 3b + c)^2$       (ii)  $(3x + 4y - 5)^2$       (iii)  $(5x + 2y - \frac{1}{5})^2$       (iv)  $(5x + 3y)^3$



22. Evaluate the following using suitable identities.  
 (i)  $(102)^3$  (ii)  $(10.4)^3$  (iii)  $111^3 - 89^3$  (iv)  $104^3 + 96^3$

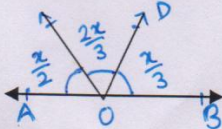
23. Factorise : (i)  $8x^3 + 27y^3 + z^3 - 18xyz$  (ii)  $a^3 - 8b^3 - 64c^3 - 24abc$

(iii)  $27a^3 - \frac{1}{64b^3} - \frac{27a^2}{4b} + \frac{9a}{16b^2}$  (iv)  $p^6 - 512q^6$

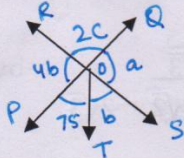
24. Three vertices of a rectangle are  $(3, 2)$ ,  $(-4, 2)$  and  $(-4, 5)$ . Plot these points and find the coordinates of the fourth vertex.

25. Plot the following points and join them. Find the area of the figure obtained.  
 $A(0,6)$ ,  $B(-3,0)$  and  $C(4,0)$ .

26. In the given figure, AOB is a line find  $\angle AOC$ ,  $\angle COD$  and  $\angle BOD$ .



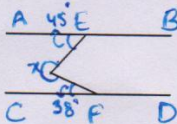
27. In the given figure two straight lines PQ and RS intersect each other at O. If  $\angle POT = 75^\circ$ , find the values of a, b and c.



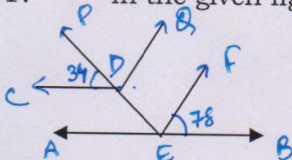
28. If a transversal intersects two parallel lines then show that the bisectors of either pair of Co-interior  $\angle$ s meet at right angle.

29. If two parallel lines are intersected by a transversal then show that the bisectors of any pair of alternate interior angles are parallel.

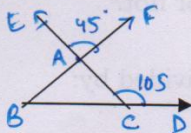
30. In the given fig.  $AB \parallel CD$ . Determine x.



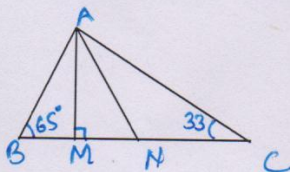
31. In the given fig.  $AB \parallel CD$  and  $EF \parallel DQ$ . Determine  $\angle PDQ$ ,  $\angle AED$ ,  $\angle DEF$



32. In the given fig. if  $\angle ACD = 105^\circ$  and  $\angle EAF = 45^\circ$ , find all angles of  $\triangle ABC$ .



33. In the given fig.  $AM \perp BC$  and AN is the bisector of A. If  $\angle B = 65^\circ$  and  $\angle C = 33^\circ$ , find  $\angle MAN$ .



34. In a study on certain disease, the following data were obtained. Represent histogram

<b>Age at first detection (in years)</b>	<b>Number of patients</b>
4-8	2
8-12	12
12-16	15
16-20	25
20-24	18
28-32	3
32-36	1

35. Draw a histogram of the following data:

<b>Monthly wages ( in rupees)</b>	<b>Number of workers</b>
325-350	30
350-375	45
375-400	75
400-425	60
425-450	35
<b>Total</b>	<b>245</b>

36. Find the mean of the following distribution :

<b>x</b>	<b>f</b>
4	5
6	10
9	10
10	7
15	8

37. The following table given the number of children of 150 families in a village:

<b>No. of children</b>	<b>No. of families</b>
0	10
1	21
2	55
3	42
4	15
5	7
<b>Total</b>	<b>150</b>

38. The number of students absent in a class were recorded every day for 120 days and the information is given in the following frequency table:

<b>No. of Students absent</b>	<b>No. of days</b>
0	1
1	4
2	10
3	50
4	34
5	15
6	4
7	2
<b>Total</b>	<b>120</b>

39. (i) Find mean, mode median for the following data.  
10, 15, 18, 10, 10, 20, 10, 20, 15, 21, 15 and 25.
40. (ii) In a test given by 15 students, the following marks were awarded. Find the mean, median and mode.  
52, 49, 41, 38, 39, 61, 58, 52, 47, 72, 85, 52, 68, 62, 79.

41. Represent the following data by means of histogram.

<b>Weekly wages ( in Rs.)</b>	<b>10-15</b>	<b>15-20</b>	<b>20-25</b>	<b>25-30</b>	<b>30-40</b>	<b>40-60</b>	<b>60-80</b>
<b>No. of workers (frequency)</b>	7	9	8	5	12	12	8

42. Draw a histogram for the marks of students given below:

<b>Marks</b>	<b>0-10</b>	<b>10-30</b>	<b>30-45</b>	<b>45-50</b>	<b>50-60</b>
<b>No. of Students</b>	8	32	18	10	6

43. The following table presents the number of illiterate females in the age group (10-34) in a town:

<b>Age Group:</b>	<b>10-14</b>	<b>15-19</b>	<b>20-24</b>	<b>25-29</b>	<b>30-34</b>
<b>No. of Elements</b>	300	980	800	580	290

44. Draw a histogram for the following data:

<b>Marks</b>	<b>25-29</b>	<b>30-34</b>	<b>35-39</b>	<b>40-44</b>	<b>45-49</b>	<b>50-54</b>
<b>No. of Students</b>	5	15	23	20	10	7

45. The marks scored by 750 students in an examination are given in the form of a frequency distribution table, construct a frequency polygon.

<b>Marks</b>	<b>600-640</b>	<b>640-680</b>	<b>680-720</b>	<b>720-760</b>	<b>760-800</b>	<b>800-840</b>	<b>840-880</b>
<b>No. of Students</b>	16	45	156	284	172	59	18

46. Find at least three solutions for each of the following linear equations in two variables:

(i)  $3x + 4y = 18$

(ii)  $x + 2y = 3$

(iii)  $x - 2y = 4$

48. Draw the graph of each of the following system of linear equations:

(i)  $3x + y + 1 = 0$

$2x - 3y + 8 = 0$

(i)  $x + y = 3$

$2x + 5y = 12$

49. Give the geometrical representation of  $2x + 13 = 0$  as an equation in (i) one variable (ii) two variables.

50. Use a single graph paper and draw the graph of the following equations:

$y = x$ ,  $y = -x$  and  $2x + 3y = 6$ . Shade the triangle formed by these lines.