

Directorate of Education
Govt. of NCT of Delhi

Practice Test Material

2015-2016

Subject : MATHEMATICS
Class : IX

Under the guidance of :
Addl. DE (School/Exam)

PRACTICE TEST-1

CLASS: IX

SUBJECT: MATHEMATICS

LINEAR EQUATIONS IN TWO VARIABLES

Time : 1.30 hrs.

M.M. 50

SECTION 'A'

- Q.1 Write a linear equation in two variables.
Q.2 Write a linear equation that converts Fahrenheit to Celsius.

SECTION 'B'

- Q.3 Write $x = 2y$ in the form of $ax + by + c = 0$ and indicate the value of a , b and c .
Q.4 Is $(4,0)$ is the solution of the equation $x - 2y = 4$?

SECTION 'C'

- Q.5 Find the value of 'K', if $x = 1$ and $y = 2$ is the solution of the equation $2x + 3y = K$.
Q.6 Write two solutions for the equation $x = 6y$.
Q.7 Give the equations of two lines passing through $(2,10)$.
Q.8 Apply $F = \left(\frac{9}{5}\right)C + 32$. Find the value of temperature which is numerically the same in both Fahrenheit and Celsius.

SECTION 'D'

- Q.9 If the points A $(3,5)$ and B $(1,4)$ lie on the graph of the line $ax + by = 7$. Find the values of a and b .
Q.10 Solve the equation $2x + 1 = x - 3$. Represent the solutions on
(i) the number line (ii) the Cartesian plane
Q.11 Draw the graph of $2x + y = 6$ and $2x - y + 2 = 0$.

PRACTICE TEST-2

CLASS: IX

SUBJECT: MATHEMATICS

QUADRILATERALS

Time : 1.30 hrs.

M.M. 50

SECTION 'A'

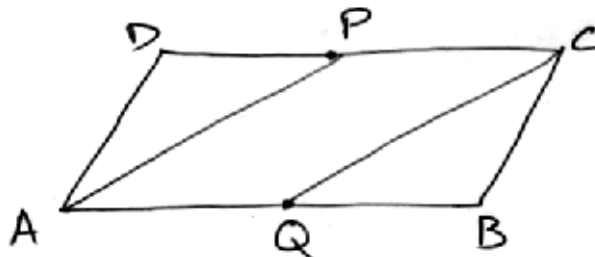
- Q.1 If the diagonals of a Quadrilateral bisect each other at right angles, the name the type of quadrilateral.
- Q.2 In a quadrilateral if only one pair of opposite sides is parallel. Then, name the type of quadrilateral.

SECTION 'B'

- Q.3 ABCD is rhombus. If $\angle A = 80^\circ$. Find all other angles.
- Q.4 If angles of a quadrilateral ABCD are in ratio 3:7:6:4. Find $\angle A$, $\angle B$, $\angle C$, $\angle D$.

SECTION 'C'

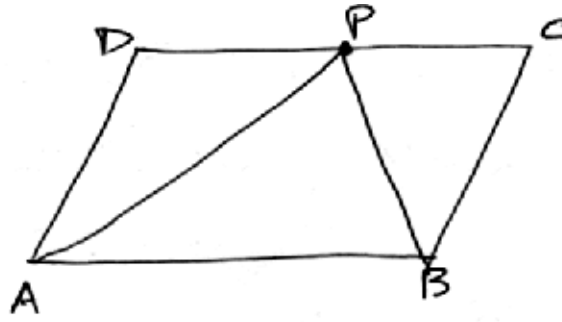
- Q.5 If ABCD is quadrilateral such that $AB \parallel CD$ and $AD = BC$. Prove that $\angle A = \angle B$.
- Q.6 In the given figures, ABCD is \parallel gm. AP is bisector of $\angle A$ and CQ is bisector of $\angle C$. Prove that $AP \parallel CQ$.



- Q.7 Show that quadrilateral formed by joining mid-points of consecutive sides of a rectangle is rhombus.
- Q.8 In a \parallel gm ABCD. E and F are the two points on diagonal AC such that $AE = CF$. Show that BEDF is a parallelogram.

SECTION 'D'

- Q.9 ABCD is \parallel gm. $\angle A = 60^\circ$, AP is bisector of $\angle A$ and BP is bisector of $\angle B$. Prove that $CP = DP$.



Q.10 Show that diagonals of a rectangle are equal.

Q.11 Show that diagonals of a rhombus are perpendicular to each other.

PRACTICE TEST-3

CLASS: IX

SUBJECT: MATHEMATICS

AREA OF PARALLELOGRAMS AND TRIANGLES

Time : 1.30 hrs.

M.M. 50

SECTION 'A'

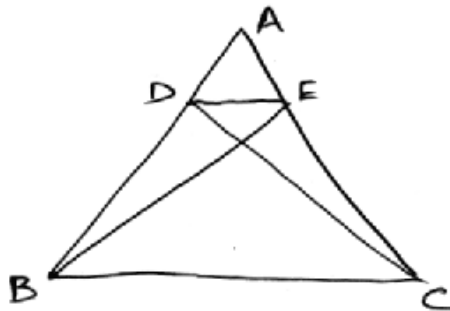
- Q.1 If a triangle a parallelogram are on same base and between same parallel lines. Find what will be the ratio of their areas.
- Q.2 If the diagonal AC of quadrilateral ABCD divides it into two parts of equal areas. Then name the type of quadrilateral ABCD.

SECTION 'B'

- Q.3 What will be the area of figure formed by joining the mid-points of the adjacent sides of a rhombus with diagonal 12cm and 16cm?
- Q.4 What will be the area of figure formed by joining the mid-points of the adjacent sides of a rectangle with 10cm and 6cm?

SECTION 'C'

- Q.5 AD is the median of $\triangle ABC$. $Ar(\triangle ADC) = 20 \text{ cm}^2$. Find $ar(\triangle ABC)$.
- Q.6 In the given figure, if $ar(\triangle DBC) = ar(\triangle EBC)$. Prove the $DE \parallel BC$.



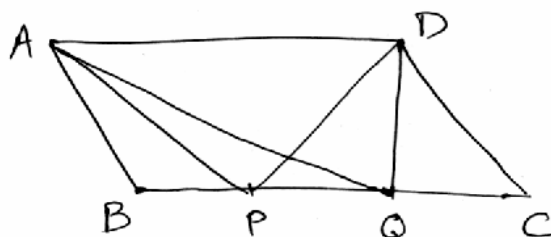
- Q.7 Show that area of trapezium = $\frac{1}{2} \times (\text{sum of parallel sides}) \times \text{height}$
- Q.8 Show that area of rhombus = $\frac{1}{2} \times \text{product of the diagonals}$.

SECTION 'D'

- Q.9 Show that median of a triangle divides it into two triangles of equal areas.
- Q.10 In the given figure, ABCD is a parallelogram.

Points P and Q on BC trisects BC in three equal parts. Prove that :

$$ar(\triangle APQ) = ar(\triangle DPQ) = \frac{1}{6} ar(ABCD)$$



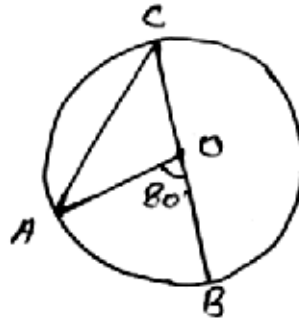
PRACTICE TEST-4
CLASS: IX
SUBJECT: MATHEMATICS
CIRCLE

Time : 1.30 hrs.

M.M. 50

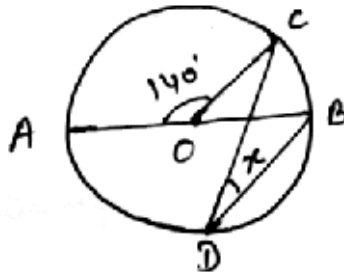
SECTION 'A'

- Q.1 Find the length of chord of a circle which is at distance of 12cm from the centre of a circle of radius 13cm.
- Q.2 In the given figure, O is centre of circle and $\angle AOB = 80^\circ$, find $\angle OAC$.

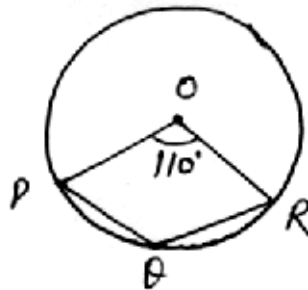


SECTION 'B'

- Q.3 In the given figure, O is centre of the circle. Find the value of x.



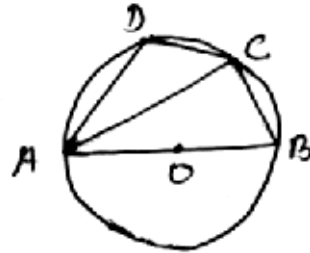
- Q.4 In the given figure, O is centre of circle if $\angle POR = 110^\circ$. Find $\angle PQR$.



SECTION 'C'

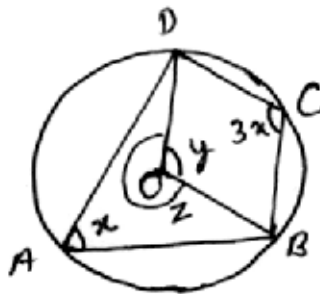
- Q.5 Prove that the circle drawn with any equal side of an isosceles triangle as diameter bisects the base.
- Q.6 ABCD is a cyclic quadrilateral. A circle passing through A and B intersects AD and BC at the points E and F respectively. Prove that $EF \parallel DC$.

- Q.7 ABCD is acyclic trapezium in which $AD \parallel BC$. If $\angle B = 70^\circ$, find remaining angles of the quadrilateral.
- Q.8 In the given figure, ABCD is a cyclic quadrilateral in which AB is a diameter of the circle passing through A, B, C and D. If $\angle ADC = 130^\circ$, find $\angle BAC$.

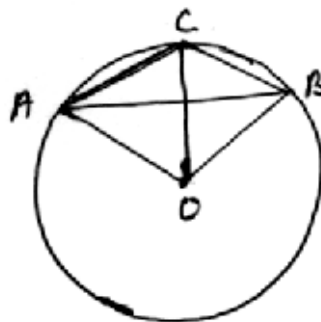


SECTION 'D'

- Q.9 In the given figure, O is centre of the circle. Find the value of x, y and z.



- Q.10 In the given figure, O is the centre of the circle. Prove that $\angle AOB = 2(\angle ABC + \angle CAB)$.



- Q.11 A circle has radius 2 cm. It is divided into two segments by a chord of length $2\sqrt{2}$ cm. Prove that the angle subtended by the chord at a point in the major segment is 45° .

PRACTICE TEST-5
CLASS: IX
SUBJECT: MATHEMATICS
CONSTRUCTIONS

Time : 1.30 hrs.

M.M. 50

SECTION 'A'

- Q.1 Draw a line segment of 6.6 cm and draw its perpendicular bisector.
- Q.2 Construct an angle of 150° and draw its bisector.

SECTION 'B'

- Q.3 Construct an equilateral triangle of side 4cm and justify the construction.
- Q.4 Construct a $\triangle ABC$ in which $BC = 6$ cm, $AB = 4$ cm and median $AD = 4.5$ cm.

SECTION 'C'

- Q.5 Construct an isosceles $\triangle ABC$ in which base $BC = 4$ cm and vertical angle is 30° .
- Q.6 Construct a $\triangle XYZ$ in which $YZ = 6.5$ cm , $\angle Y = 75^\circ$ and $XZ - XY = 2.5$ cm.
- Q.7 Construct a $\triangle ABC$ in which $BC = 7$ cm, $\angle B = 60^\circ$ and sum of other two sides is 10 cm.
- Q.8 Construct a $\triangle PQR$ in which $\angle Q = 60^\circ$, $\angle P = 75^\circ$ and $PQ + QR + RP = 12$ cm.

SECTION 'D'

- Q.9 Construct a $\triangle ABC$ in which $BC = 4.2$ cm, $AB = 3.8$ m and altitude = 2.6 cm.
- Q.10 Construct a $\triangle DEF$ whose perimeter is 18cm and ratio of sides is 2 : 3 : 4.
- Q.11 Construct a right triangle whose base is 6cm and sum of hypotenuse and other side is 9 cm.

PRACTICE TEST-6
CLASS: IX
SUBJECT: MATHEMATICS
STATISTICS

Time : 1.30 hrs.

M.M. 50

SECTION 'A'

- Q.1 Define range.
Q.2 Define class marks.

SECTION 'B'

- Q.3 The height of the 10 students are :
160cm, 154cm, 150cm, 152cm, 154cm, 152cm, 153cm, 155cm, 156cm, 154cm
Find the median of the data.
- Q.4 Find the mode or the following data:
130, 110, 120, 130, 140, 130, 140, 110

SECTION 'C'

- Q.5 If the mean of 4, 7, 6, 'a' and 10 is 8. Find the value of 'a'.
- Q.6 The ages of 10 students of class IX in a school. Prepare a frequency distribution table:
14, 15, 13, 15, 14, 15, 14, 13, 14, 14
- Q.7 The mean and mode of the data are 24 and 12 respectively, then find the median of the data.
- Q.8 Find the mean of x , $x+2$, $x+6$, $x+4$, $x+8$.

SECTION 'D'

- Q.9 Find the mean of the following distribution :

x	4	6	9	10	15
f	5	10	10	7	8

- Q.10 The following table gives the marks scored by 100 students in an entrance examination.

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70
No. of students (frequency)	6	12	18	24	20	15	5

Draw a histogram for this data.

- Q.11 Find the median of the following observations 46, 64, 87, 41, 58, 77, 35, 90, 55, 92, 33. If 92 is replaced by 99 and 41 by 43 in the above data, find the new median?

PRACTICE TEST-7
CLASS: IX
SUBJECT: MATHEMATICS
PROBABILITY

Time : 1.30 hrs.

M.M. 50

SECTION 'A'

- Q.1 If the probability of winning a game is 0.43, what is the probability of losing it.
- Q.2 What is the probability of getting a face card from the well shuffled pack of 52 cards?

SECTION 'B'

- Q.3 What is the probability that a leap year selected at random will contain 53 Fridays?
- Q.4 A coin is tossed 500 times, we get head 285 times what is the probability of getting a tail?

SECTION 'C'

- Q.5 The percentage of marks scored by a student in monthly unit tests are given below:

Unit Test	I	II	III	IV	V
% of marks	89	71	73	88	74

A unit test selected at random. What is the probability that the student gets (i) More than 80% marks, (ii) less than 80% marks.

- Q.6 A box contains 4 blue, 2 white, 3 red balls. If a ball is drawn at random from the box, what is the probability that it will be
(i) white (ii) blue (iii) red

- Q.7 Three coins are tossed simultaneously 150 times with different outcomes

Outcome	3 tails	2 tails	1 tail	No tail
Frequency	20	65	50	15

Find the probability of getting:

(i) two tails (ii) at least two tails (iii) two head and one tail

- Q.8 On a busy road, the following data was observed about cars passing through it and number of occupants

No. of occupants	1	2	3	4	5
No. of cars	29	26	23	17	5

Suppose another car pass by. Find the probability that it has

- (i) exactly 5 occupants (ii) more than 2 occupants (iii) less than 5 occupants

SECTION 'D'

Q.9 In class IX the blood group of 30 students is as follows:

A B O O AB O A O B A O B A O O
 A AB O A A O O AB B A O B A B O

One student is selected for blood donation. Find the probability that the blood group is

- (i) A (ii) B (iii) AB (iv) O

Q.10 The frequency distribution of wages (in Rs.) of 50 workers in certain factory is:

Wages (in Rs.)	110-130	130-150	150-170	170-190	190-210	210-230	230-250
No. of Workers	3	8	9	10	8	7	5

A worker selected at random. Find the probability that his wages are :

- (i) less than 150 Rs. (ii) at least Rs. 210 (iii) More than equal to 150 Rs. but less than 210 Rs. (iv) more than 230 Rs.

Q.11 A recent survey found that the ages of workers in a factory is distributed as follows:

Age (in years)	20-29	30-39	40-49	50-59	60 and above
No. of workers	38	27	86	46	3

If a person selected at random, find the probability that a person is :

- (i) 40 years or more (ii) under 40 years (iii) having age from 30-39 years (iv) under 60 but over 39 years.