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## SUMMATIVE ASSESSMENT-I- 2016-17

KV· Andrews hin SUBJECT – MATHEMATICS

### CLASS- IX

Time 3:00Hrs                                                                M.M:90

General instruction:

1.    All questions are compulsory.

2.    The paper consists of 31 questions divided into four sections A,B,C and D. Section A comprises of 4  questions of 1 mark each, section B comprises of 6 questions of 2 marks each , section C comprises of 10 questions of 3 marks each and section D comprises of 11 questions of 4 marks each.

3.    There is no overall choice.

4.    Use of calculator is not permitted.

### SECTION A

1.    Is the number $(3-\sqrt{7})(3+\sqrt{7})$ rational or irrational?

2.    Write the coefficient of y in the expansion of $(5-y)^2$.

3.    In the given fig. for  what value of x+y which make $\angle ABC$ a straight line:
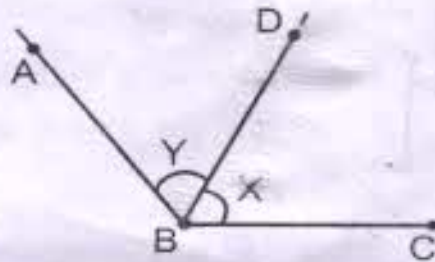
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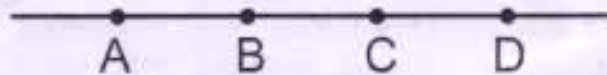
[ Write the Euclid's first postulates.

4.    Find the perpendicular distance of the point P(5,7) from the y-axis.

### SECTION B

5.    If the coordinates of two points are P(-2,3) and Q(-3,5) then find  (abscissa of P)-(abscissa of Q).

6.    Without actually calculating the cubes, find the value of $48^3 - 30^3 - 18^3$

[P.T.O.]

7. In given fig., if AC=BD. Using an Euclid's axiom show that AB=CD.



A      B      C      D

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     If the ratio between two complementary angles is 2:3, then find the angles.

8. Find two rational numbers between -2 and 5.

9. The sides of a triangle are 8cm, 15cm and 17cm. Find its area.

10. An exterior angle of a $\triangle$ is $110^0$ and its two interior opposite angles are equal. Find each of these equal angles.

## SECTION -C

11. Plot the following points and check whether they are collinear or not:

(-1,1), (-3,3), (-5,5) .

12. By actual division, find the quotient and remainder when $3x^4 - 4x^3 - 3x - 1$ is divided by x+1.

13. Locate $\sqrt{3}$ on the number line.

14. In fig, line CB and FD intersect at A. if $\angle POX = 90°$ and a:b=2:3, find c.
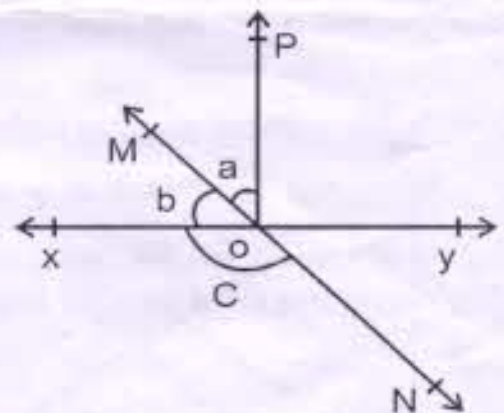


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     The angles of a triangle are in the ratio 6:7:2. Find the angles of the triangle.

15. Prove that angles opposite to equal sides of a triangle are equal.

16. The perimeter of an isosceles triangle is 32 cm. The ratio of the equal side to its base is 3:2. Find the area of the triangle.

17. Factorize : $2x^3 - 3x^2 - 17x + 30$

18. Prove that the sum of the angles of triangle is 180°

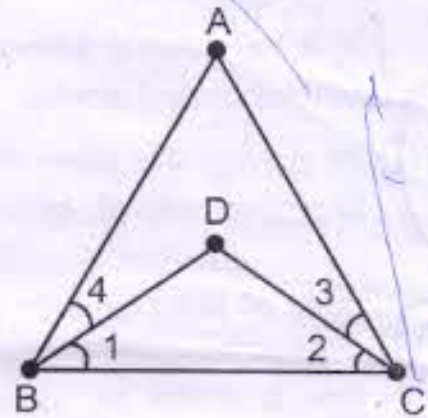19. Simplify: $\dfrac{9^{\frac{1}{3}} \times 27^{\frac{-1}{2}}}{3^{\frac{1}{6}} \times 3^{\frac{-2}{3}}}$

20. In fig., we have $\angle ABC = \angle ACB$

     and $\angle 3 = \angle 4$.

     Show that $\angle 1 = \angle 2$.

For visually impaired

     If two lines intersect each other, then the vertically opposite angles are equal.

## SECTION- D

21. Factories the following :

     (i). $x^2 - \dfrac{y^2}{9}$

     (ii). $2x^2 - 7x - 15$

22. Pooja distributed Cuboidal gifts to the children in an orphanage on her birthday. What are the possible expression for the dimensions of the Cuboid if the volume is $3Kx^2 + 2Kx - 5K$. What value of Pooja is depicted here?

23. If $\dfrac{5 + 3\sqrt{3}}{7 + 4\sqrt{3}} = a + b\sqrt{3}$ , Find the values of a and b.

24. Prove that the sum of any two sides of a triangle is greater than twice the median drawn to the third side.

25. $\triangle ABC$ in an isosceles triangle in which AB = AC. Side BA is produced to D such that AD=AB .Show that $\angle BCD$ is a right angle.

26. In fig. the side QR of $\triangle PQR$ is produced to a point S. If the bisector of $\angle PQR$ and $\angle PRS$ meet at a point T

     then prove that $\angle QTR = \dfrac{1}{2} \angle QPR$
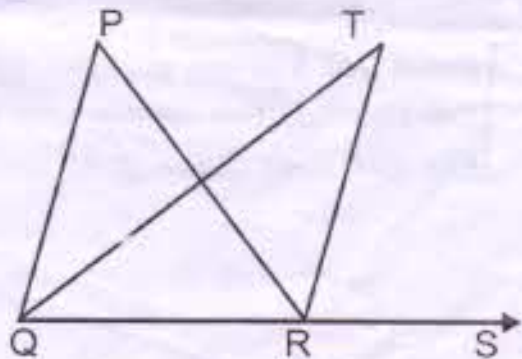
[P.T.O.]

**For visually impaired**

If a transversal intercepts two lines such that the bisectors of a pair of corresponding angles are parallel ,then prove that the two lines parallel.

27. In $\triangle ABC$ the sides AB and AC of $\triangle ABC$ are produced to points E and D respectively of bisectors BO and CO of $\angle CBE$ and $\angle BCD$ respectively meet at point O, then prove that $\angle BOC = 90° - \dfrac{1}{2}\angle A$.

28. If a, b ,c are all non-zero and a+b+c=0 Prove that
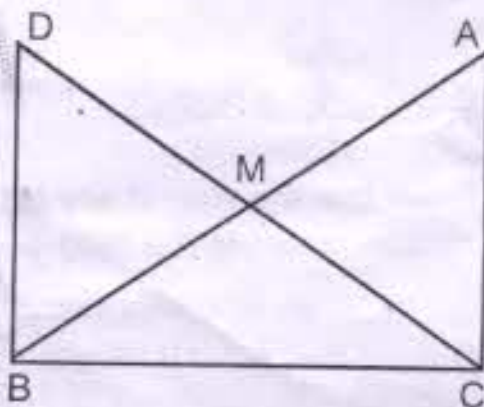
$$\frac{a^2}{bc} + \frac{b^2}{ca} + \frac{c^2}{ab} = 3$$

29. Find the value of a and b so that x+1 and x-1 are factors of $x^4 + ax^3 + 2x^2 - 3x + b$ .

30. Represent $\sqrt{9.3}$ on number line prove it.

31. In right triangle ABC , right angled at C. M is the mid point of hypotenuse AB . C is joined to M and produced to a point D such that DM = CM .Point D is joined to point B.

Show that

i)  $\triangle AMC \cong \triangle BMD$

ii)  $\angle DBC$ is a right angle

iii)  $\triangle DBC \cong \triangle ACB$

iv)  $CM = \dfrac{1}{2}AB$

**For visually impaired**

Prove that if in two triangles, two angles and the included side of one triangle are equal to two angles and the included side of other triangle, then two triangles are congruent