

DEVAMATHA CMI PUBLIC SCHOOL
PRE-MIDTERM EXAMINATION - 2017 - 2018

DEV/ACD/FMT/ 019/R0

Std. IX

MATHEMATICS (041)

General Instructions :

Time : 90 mins.

Answer the following questions with necessary steps.

Marks : 40

SECTION - A

1. If a and b are rational numbers, then $(\sqrt{a} + \sqrt{b}) (\sqrt{a} - \sqrt{b})$ is a rational number.

Is it true? (1x3=3)

2. The angles of a Quadrilateral are in the ratio 2:3:4. Find the smallest angle.
3. Determine the degree of the Polynomial $x^3(2-x^3)$.

SECTION - B

4. Write Postulate 5 of Euclid's Geometry. (2x3=6)

5. Rationalize the denominator: $\frac{5}{\sqrt{3} - \sqrt{5}}$

6. Write the quadrant or axis where these points lie:

a) (5, -5), b) (0, 3), c) (-4, 0), d) (-3, -4)

SECTION C

7. Represent $\sqrt{3}$ on number line with necessary steps. (3x5=15)

8. Verify that (-2) and 3 are zeroes of the polynomial x^2-x-6 .

9. Plot the points (-2,3), (3,0), (4,2) (-4, -3), (0, -3) in the cartesian plane.

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

11. Line segment AB is parallel to another line segment CD. O is the midpoint of AD. Show that

1) $\triangle AOB \cong \triangle DOC$

2) O is the midpoint of BC.

SECTION - D

12. a) Express $6.\overline{23}$ in $\left(\frac{P}{q}\right)$ form (4x4=16)

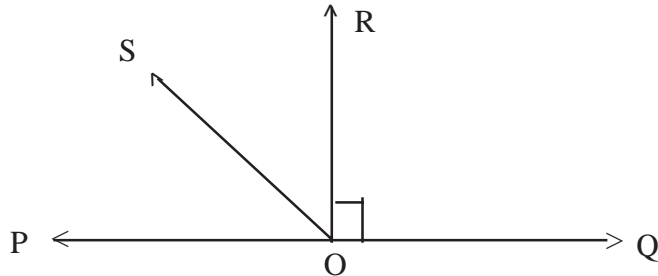
b) Simplify: $\left(\frac{81}{625}\right)^{\frac{1}{4}}$

13. a) Evaluate 101×103 using identity.

b) Factorize $8a^3 - b^3 - 12a^2b + 6ab^2$

14. POQ is a line. Ray OR is perpendicular to line PQ. OS is another ray lying between rays OP and OR. Prove that.

$$\angle ROS = \frac{1}{2} (\angle QOS - \angle POS)$$



15. Line l is the bisector of an angle $\angle A$ and B is any point on l . BP and BQ are perpendiculars from B to the arms of $\angle A$.

Show that:

1) $\triangle APB \cong \triangle AQB$

2) $BP = BQ$

