

**Periodic Test (2) 2019-20**  
**Class-IX**  
**Sub: Maths.**

**M.M: 40**

**Time: 1½ hrs.**

Note: Question paper is divided into 4 sections A,B,C,D.

(i) In Section A each question is of 1 mark, in section B each question is of 2 marks, in Section C each question is of 3 marks, in Section D each question is of 4 marks.

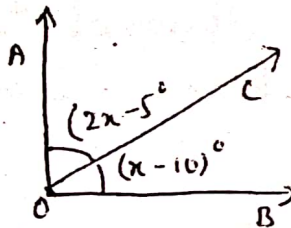
(ii) No calculators are allowed.

**Section-A**

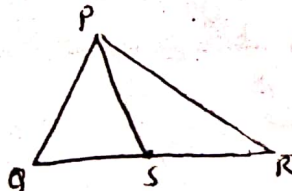
1. Write one rational number between 2 and 3?
2. If  $p(x) = x^3 - 3x^2 + 4x - 4$  find  $p(-2)$
3. How many line segments can be determined by 3 collinear points?
4. Two adjacent sides of a 11 gm. are equal but all angles are not equal, What type of a quadrilateral is this :

**Section-B**

5. Find the value of  $\frac{(3.98 \times 3.98) - (2.42 \times 2.42)}{(3.98 + 2.42)}$
6. In the given figure  $AO \perp OB$ , find  $\angle AOC$  and  $\angle BOC$



7. In the figure S is any point on the side QR of  $\Delta PQR$ . Show that  $PQ + QR + RP > 2PS$



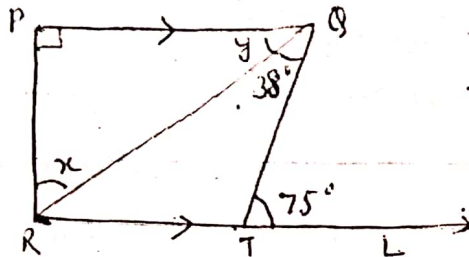
8. The angles of quadrilateral are in the ratio 4 : 7 : 9 : 10 Find all the angles of quadrilateral.

### Section-C

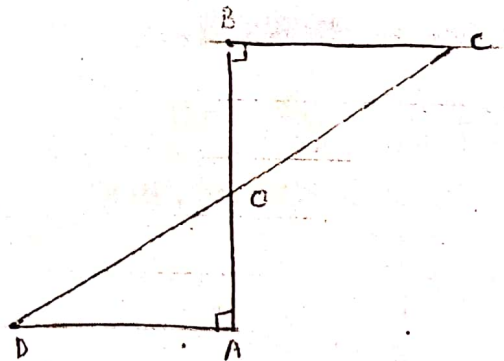
9. Find the value of a and b if  $\frac{3+\sqrt{2}}{3-\sqrt{2}} = a+b\sqrt{2}$

10. Plot points A (4,5) , B (-2, 3) C (-2, -3) and D (4, -6) on graph. Join ABCD and name the figure thus obtained.

11. In the given figure  $PQ \perp PR$ ,  $PQ \parallel RL$ ,  $\angle RQT = 38^\circ$  and  $\angle QTL = 75^\circ$ . Find x and y.



12. AD and BC are equal perpendiculars to a line segment AB. Show that CD bisects AB.



### Section-D

13. Let cost of a pencil and an eraser be Rs. x and y respectively. A girl pays Rupees 9 for 2 pencils and 3 erasers. Write the given data in the form of linear equation in 2 variables, also represent it graphically.

OR

Solve the equation  $2x+1=x-3$  and represent the solution on (i) the number line  
(ii) the cartesian plane.

14. Prove that the sum of interior angles of a triangle is  $180^\circ$ . The 2 interior angles of  $\Delta$  are  $37^\circ$  and  $83^\circ$ , find its third angle.

15. Triangle ABC is an isosceles triangle with  $AB=AC$ . Draw  $AP \perp BC$  and show that  $\angle B=\angle C$

16. ABCD is a quadrilateral in which P,Q,R,S are the mid points of sides AB,BC,CD,AD respectively. Show that PQRS is a parallelogram.

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Second Periodic Test (2019-20)

Marking Scheme  
Mathematics (IX)

Section A

- 1) For correct rational no. b/w 2 and 3 → (1) marks
- 2)  $p(-2) = (-2)^3 - 3(-2)^2 + 4(-2) - 4$  → (1/2) mark  
 $= -8 - 12 - 8 - 4 = -32$  → (1/2) mark
- 3) 3 → (1) mark
- 4) Rhombus → (1) mark

Section B

(5)  $\frac{(3.98)^2 - (2.42)^2}{(3.98 + 2.42)} = \frac{(3.98 - 2.42)(3.98 + 2.42)}{(3.98 + 2.42)}$  → (1/2) + (1) marks  
 $= 1.56$  → (1/2) mark

(6)  $\angle AOB = 90^\circ$   
 $(2x - 5) + (x - 10) = 90^\circ$  → (1/2) mark  
 $3x - 15^\circ = 90^\circ$   
 $3x = 105^\circ$   
 $x = 35^\circ$  → (1/2) mark  
 $\angle AOC = 2(35^\circ) - 5 = 70^\circ - 5^\circ = 65^\circ$  → (1/2) mark  
 $\angle BOC = 35^\circ - 10 = 25^\circ$  → (1/2) mark

(7) In  $\Delta PQS$   
 $PQ + QS > PS \rightarrow$  (1) → (1/2) mark

In  $\Delta PSR$   
 $PR + SR > PS \rightarrow$  (2) → (1/2) mark

from (1) & (2)  
 $PQ + (QS + SR) + PR > 2PS$  → (1/2) mark  
 $PQ + QR + PR > 2PS$  → (1/2) mark

(8)  $4x + 7x + 9x + 10x = 360^\circ$  → (1/2) mark  
 $30x = 360^\circ$   
 $x = 12$  → (1/2) mark  
4  $\angle$ s are  $48^\circ, 84^\circ, 108^\circ, 120^\circ$  → (1) mark



Section C

9)  $\frac{3+\sqrt{2}}{3-\sqrt{2}} \times \frac{3+\sqrt{2}}{3+\sqrt{2}} = \frac{9+9+6\sqrt{2}}{9-2} = \frac{18+6\sqrt{2}}{7} \rightarrow \left(\frac{1}{2}\right) + 1 + \left(\frac{1}{2}\right) \text{ marks}$

$a = \frac{18}{7} \quad b = \frac{6}{7} \rightarrow \left(\frac{1}{2}\right) + \left(\frac{1}{2}\right) \text{ marks}$

10) For plotting each point correctly  $\rightarrow \frac{1}{2} \times 4 = 2 \text{ marks}$   
For drawing correct figure + name of figure  $\rightarrow \frac{1}{2} + \frac{1}{2} = 1 \text{ mark}$

(11)  $y = 75 - 38^\circ = 37^\circ$  (alternate int  $\angle$ s)  $\rightarrow 1 \text{ (value)} + \frac{1}{2} \text{ (reason)}$

⊙  $x + y + 90^\circ = 180^\circ$   $\rightarrow \frac{1}{2} \text{ mark}$

$x + 37^\circ + 90^\circ = 180^\circ$

$x = 180^\circ - 127^\circ = 53^\circ$   $\int 1 \text{ mark.}$

(12) To prove  $\triangle BOC \cong \triangle AOD$  (using condition)  $\rightarrow 2 \text{ marks}$

$OB = OA$   $\rightarrow 1 \text{ mark}$

Section D

(13)  $2x + 3y = 9$   $\rightarrow 1 \text{ mark}$

For finding correct solutions or points  $\rightarrow 1 \text{ mark}$

plotting correct points and drawing graph  $\rightarrow 2 \text{ marks}$

Or

$2x + 1 = x - 3$

$2x - x = -3 - 1$

$x = -4$   $\rightarrow 1 \text{ mark}$

(i) plotting  $x = -4$  on no. line  $\rightarrow 1 \text{ mark}$

(ii) drawing graph on cartesian plane  $\rightarrow 2 \text{ marks}$

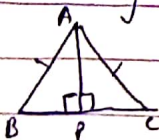
(14) For correct figure  $\rightarrow \frac{1}{2} \text{ mark}$

given, to prove  $\rightarrow \frac{1}{2} \text{ mark}$

for correct proof  $\rightarrow 2 \text{ mark}$

for finding 3rd angle correctly  $\rightarrow 1 \text{ mark}$

(15) For drawing correct figure  $\rightarrow \frac{1}{2} \text{ mark}$



→ given, to prove

$$\rightarrow \triangle APB \cong \triangle APC \text{ (RHS)}$$

$$\angle B = \angle C \text{ (c.p.c.t)}$$

$\frac{1}{2}$  mark

—  $\frac{2}{2}$  marks

—  $\frac{1}{2}$  mark

(16) For drawing correct figure

—  $\frac{1}{2}$  mark

Given, to prove

—  $\frac{1}{2}$  mark

For proving PQRS a llgm

— 3 marks

— x —