

**CBSE**  
**Class IX Mathematics**  
**Term 2**  
**Sample Paper – 1**

- Q1. An exterior angle of a triangle is  $110^\circ$  and the two interior opposite angles are equal. Each of these angles is
- (A)  $70^\circ$
  - (B)  $55^\circ$
  - (C)  $35^\circ$
  - (D)  $110^\circ$
- Q2. In  $\Delta PQR$ , if  $\angle R > \angle Q$ , then
- (A)  $QR > PR$
  - (B)  $PQ > PR$
  - (C)  $PQ < PR$
  - (D)  $QR < PR$
- Q3. Two sides of a triangle are of lengths 7 cm and 3.5 cm. the length of the third side of the triangle cannot be
- (A) 3.6 cm
  - (B) 4.1 cm
  - (C) 3.4 cm
  - (D) 3.8 cm
- Q4. A rational number between 2 and 3 is
- (A) 2.010010001..
  - (B)  $\sqrt{6}$
  - (C)  $5/2$
  - (D)  $4 - \sqrt{2}$
- Q5. In triangles ABC and DEF,  $\angle A = \angle D$ ,  $\angle B = \angle E$  and  $AB = EF$ , then are the two triangles congruent? If yes, by which congruency criterion?
- (A) Yes, by AAS
  - (B) No
  - (C) Yes, by ASA
  - (D) Yes, by RHS

Q6. In  $\Delta PQR$ ,  $\angle P = 70^\circ$ ,  $\angle R = 30^\circ$ , which side of this triangle is the longest? Give reasons for your answer.

- (A) PQ
- (B) QR
- (C) PR
- (D) PQ QR

Q7. If  $a = 9 - 4\sqrt{5}$ , find the value of  $\frac{1}{a}$ .

- (A)  $8 - \sqrt{5}$
- (B)  $7 - \sqrt{5}$
- (C)  $-8 + \sqrt{5}$
- (D)  $7 - \sqrt{3}$

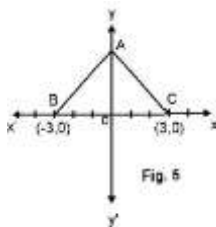
Q8. If  $(x-3)$  and  $x - \frac{1}{3}$  are both factors of  $ax^2 + 5x + b$ , then.

- (A)  $a > b$
- (B)  $a < b$
- (C)  $a = b$
- (D) can't be said

Q9. Find the value  $x^3y^3 + 15xy - 125$  when  $x+y=5$ .

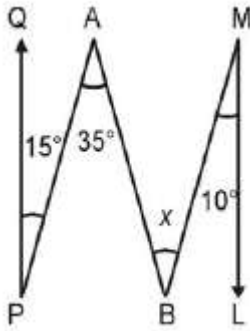
- (A) 1
- (B) -1
- (C) 2
- (D) 0

Q10. In figure ABC is an equilateral triangle with coordinates of B and C as  $B(-3,0)$  and  $C(3,0)$  find the coordinates of the vertex A.



- (A)  $3\sqrt{3}, 0$
- (B)  $0, 3\sqrt{3}$
- (C)  $0, -3\sqrt{3}$
- (D)  $0, 0$

Q11. In fig .6 QPIML and other angles are shown. Find the values of x.



- (A)  $45^\circ$
- (B)  $60^\circ$
- (C)  $30^\circ$
- (D)  $35^\circ$

Q12. In fig. 7  $QT \perp PR$ ,  $\angle TQR = 40^\circ$  and  $\angle SPR = 30^\circ$ . Find the values of x and y.

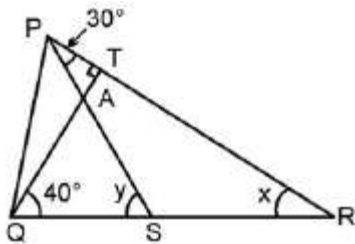


Fig. 7

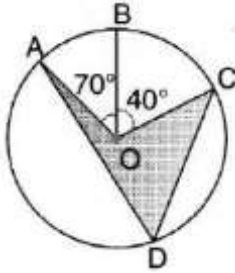
- (A)  $x = 50^\circ, y = 80^\circ$
- (B)  $x = 80^\circ, y = 50^\circ$
- (C)  $x = 60^\circ, y = 70^\circ$
- (D)  $x = 70^\circ, y = 60^\circ$

Q13. Find the area of a triangle two sides of which are 18 cm and 10 cm and the perimeter is 42 cm.

- (A)  $17\sqrt{11} \text{ cm}^2$
- (B)  $19\sqrt{11} \text{ cm}^2$
- (C)  $21\sqrt{11} \text{ cm}^2$
- (D)  $23\sqrt{11} \text{ cm}^2$

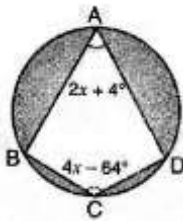
- Q14. Let  $p$  and  $q$  be the remainders, when the polynomials  $x^3 + 2x^2 + 5ax - 7$  and  $x^3 + ax^2 - 12x + 6$  are divided by  $(x + 1)$  and  $(x - 2)$  respectively. If  $2p + q = 6$ , find the value of  $a$ .
- (A) 2  
(B) -2  
(C) -3  
(D) 3
- Q15. Factorize  $x^{12} - y^{12}$ .
- (A)  $(x - y)(x^2 + y^2 + xy)(x + y)(x^2 + y^2 - xy)(x^2 - y^2)(x^4 + y^4 - x^2y^2)$   
(B)  $(x - y)(x^2 + y^2 + xy)(x - y)(x^2 + y^2 - xy)(x^2 + y^2)(x^4 - y^4 - x^2y^2)$   
(C)  $(x - y)(x^2 - y^2 + xy)(x + y)(x^2 + y^2 - xy)(x^2 + y^2)(x^4 + y^4 - x^2y^2)$   
(D)  $(x - y)(x^2 + y^2 + xy)(x + y)(x^2 + y^2 - xy)(x^2 + y^2)(x^4 + y^4 - x^2y^2)$
- Q16. Find the value of  $C$  if the line  $2x + 3y + C = 0$  passes through origin.
- (A) 0  
(B) 2  
(C) 1  
(D) 3
- Q17. If PQRS is a parallelogram, then find the value of  $\angle Q + \angle R$  and  $\angle R + \angle S$
- (A)  $180^\circ, 150^\circ$   
(B)  $180^\circ, 180^\circ$   
(C)  $150^\circ, 180^\circ$   
(D)  $30^\circ, 150^\circ$
- Q18. There are 100 students in a class. 40 of them are girls. The average mark of the boys in science is 75% and that of the girls is 65%. Find the average marks of the class in science.
- (A) 81%  
(B) 51%  
(C) 61%  
(D) 71%

Q19. In the given figure, A, B and C are three points on a circle with centre O such that  $\angle BOC = 40^\circ$  and  $\angle AOB = 70^\circ$ . If D is a point on the circle, find  $\angle ADC$ .



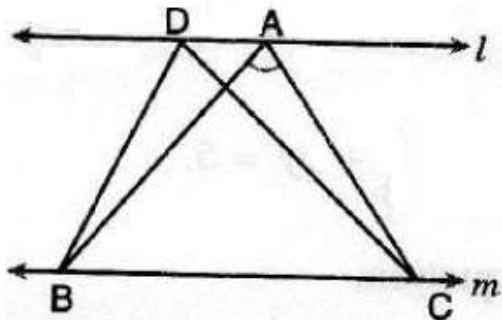
- (A)  $45^\circ$
- (B)  $65^\circ$
- (C)  $55^\circ$
- (D)  $85^\circ$

Q20. In the figure, find the value of x.



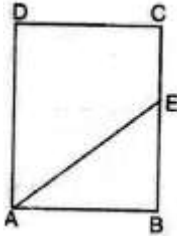
- (A)  $50^\circ$
- (B)  $40^\circ$
- (C)  $60^\circ$
- (D)  $70^\circ$

Q21. In the given figure, ABC and DBC are triangles on the same base and between parallel lines. If  $AB = 3$  cm,  $BC = 5$  cm,  $\angle A = 90^\circ$ , find area  $\triangle DBC$ .



- (A)  $6 \text{ cm}^2$
- (B)  $5 \text{ cm}^2$
- (C)  $4 \text{ cm}^2$
- (D)  $7 \text{ cm}^2$

Q22. ABCD is a parallelogram. If E is the mid-point of BC and AE is the bisector of  $\angle A$ . which of the following is correct

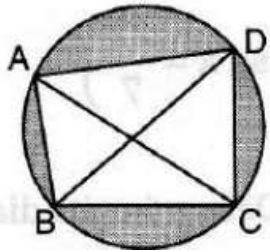


- (A)  $AB = \frac{1}{3} AD$
  - (B)  $AB = \frac{1}{2} AD$
  - (C)  $AB = \frac{1}{4} AD$
  - (D)  $AB = \frac{1}{8} AD$
- Q23. How many square metre of canvas is required for making a conical tent whose height is 3.5 m and the radius of the base is 12 m? (Use  $\pi = \frac{22}{7}$ )
- (A)  $471.44 \text{ cm}^2$
  - (B)  $471.45 \text{ cm}^2$
  - (C)  $471.46 \text{ cm}^2$
  - (D)  $471.43 \text{ cm}^2$
- Q24. The volume of a sphere is  $905 \frac{1}{7} \text{ cm}^3$ . Determine its diameter and its surface area. (Use  $\pi = \frac{22}{7}$ )
- (A)  $452 \frac{3}{7}$
  - (B)  $452 \frac{2}{7}$
  - (C)  $452 \frac{4}{7}$
  - (D)  $452 \frac{1}{7}$

Q25. Mahesh and Altaf, two students donated Rs. 95 towards the Prime Minister's Relief Fund. Write a linear equation in two variable for the above statement.

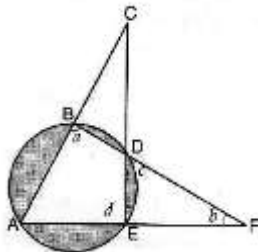
- (A)  $x + y = 95$
- (B)  $x - y = 95$
- (C)  $-x + y = 95$
- (D)  $x + y = -95$

Q26. In the figure, ABCD is a cyclic quadrilateral in which AC and BD are diagonal. If  $\angle ABC = 55^\circ$  and  $\angle BAC = 45^\circ$ , find  $\angle BCA$ .



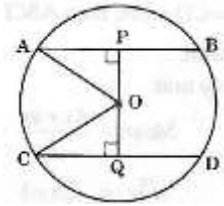
- (A)  $70^\circ$
- (B)  $80^\circ$
- (C)  $60^\circ$
- (D)  $50^\circ$

Q27. In the given figure,  $\angle BCD = 43^\circ$  and  $\angle BAE = 62^\circ$ . Find the value of a, b, c, d.



- (A)  $a = 13^\circ, b = 105^\circ, c = 62^\circ, d = 75^\circ$
- (B)  $a = 105^\circ, b = 13^\circ, c = 75^\circ, d = 62^\circ$
- (C)  $a = 105^\circ, b = 62^\circ, c = 13^\circ, d = 75^\circ$
- (D)  $a = 105^\circ, b = 13^\circ, c = 62^\circ, d = 75^\circ$

- Q28. In the figure, O is the centre of the circle of radius 5 cm,  $OP \perp AB$ ,  $OQ \perp CD$ ,  $AB \parallel CD$ ,  $AB = 6$  cm,  $CD = 8$  cm. Determine PQ.



- (A) 6  
(B) 3  
(C) 7  
(D) 8
- Q29. A circus tent is in the form of a cone of height 15m and diameter 16 m. Find the length of the canvass needed to make the tent if the width of the canvass 2 m. (use  $\pi = 3.14$ )
- (A) 213.52  
(B) 213.42  
(C) 213.53  
(D) 213.54
- Q30.  $\frac{3}{4}$  th of cylindrical can contains milk. The height of the can is 1.4 m and radius is 0.4 m. This milk is poured into small cylindrical glasses of height 10 cm and radius 5 cm. How many small glasses are needed to empty the can?
- (A) 672  
(B) 671  
(C) 673  
(D) 674