

CBSE Class 9 Maths
SAMPLE
QUESTION PAPER - 9
Self Assessment _____

Time : 3 Hours

Maximum Marks : 90

SECTION 'A'

Question numbers 1 to 4 carry one mark each. For each question four alternative choices have been provided of which only one is correct. You have to select the correct choice.

1. The sum of $0.\bar{3}$ and $0.\bar{4}$ is :

(A) $\frac{7}{10}$

(B) $\frac{7}{9}$

(C) $\frac{7}{99}$

(D) $\frac{7}{11}$

2. The value of $\frac{83^3 + 17^3}{83^2 - 83 \times 17 + 17^2}$ is :

(A) 83

(B) 17

(C) 100

(D) 66

3. The degree of the polynomial $(x^3 + 5)(4 - x^5)$ is :

(A) 5

(B) 3

(C) 8

(D) 2

4. If $a = 3 + b$, then $a^3 - b^3 - 9ab$ is :

(A) 9

(B) 27

(C) 81

(D) 18

SECTION 'B'

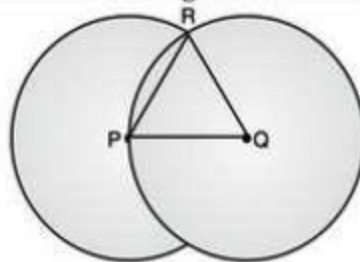
Question numbers 5 to 10 carry two marks each.

5. Find the product of $5\sqrt{2}(3 + \sqrt{2})(5 + \sqrt{2})$

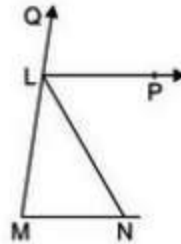
6. Factorise : $x^4y^4 - 256z^4$.

7. Evaluate : $64x^3 + \sqrt{125}y^3$.

8. P and Q are the centres of two intersecting circles. Prove that $PQ = QR = PR$.

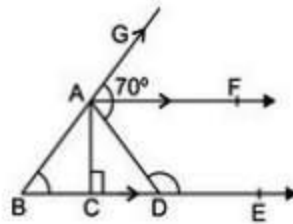


9. In the given figure, $\triangle LMN$ is an isosceles triangle with $\angle M = \angle N$ and LP bisects $\angle NLQ$. Prove that $LP \parallel MN$.



OR

- In the given figure, $AF \parallel BE$, $AC \perp BE$ and AF bisects $\angle GAD$. If $\angle GAD = 70^\circ$, then find the measure of $\angle ABC$ and $\angle ADE$.



10. Draw a quadrilateral $ABCD$, whose vertices are $A(3, 2)$, $B(2, 3)$, $C(-4, 5)$ and $D(5, -3)$.
All the points $(3, 2)$ & $(2, 3)$ same? Give reason for your answer.

SECTION 'C'

Question numbers 11 to 20 carry three marks each.

11. Evaluate: $(\sqrt{2} + \sqrt{3})^2 + (\sqrt{5} - \sqrt{2})^2$

OR

If $x = 2 + \sqrt{3}$, find $x - \frac{1}{x}$ and $x^2 + \frac{1}{x^2}$.

12. Simplify: $\frac{4 + \sqrt{5}}{4 - \sqrt{5}} + \frac{4 - \sqrt{5}}{4 + \sqrt{5}}$

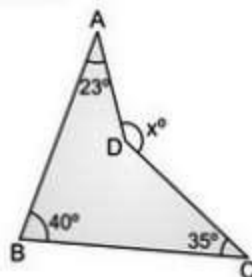
13. If $(x - 2)$ and $(x - \frac{1}{2})$ are factors of $px^2 + 5x + r$, then show that $p = r$.

OR

If $x = \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$ and $y = \frac{\sqrt{3} - \sqrt{2}}{\sqrt{3} + \sqrt{2}}$, find the value of $x^2 - y^2 + xy$, if $\sqrt{6} = 2.4$.

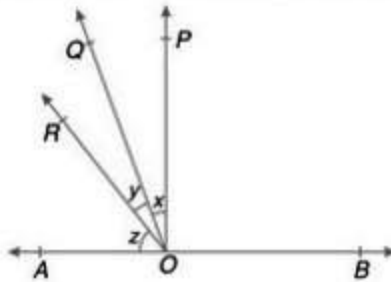
14. For what value of m , is the polynomial $3x^3 + 2mx^2 + 3x + 6$ exactly divisible by $(x + 2)$? Hence factorise the polynomial.

15. In the given figure, find the value of x° .



OR

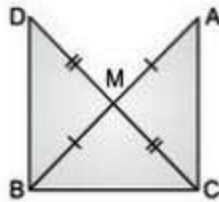
In the given figure, $PO \perp AB$. If $x : y : z = 1 : 3 : 5$, then find the degree measure of x, y, z .



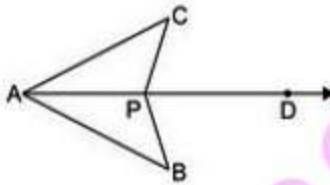
16. In right triangle ABC , right angled at C , M is the mid-point of hypotenuse AB . C is joined to M and produced to a point D such that $DM = CM$.

Point D is joined to point B . Show that :

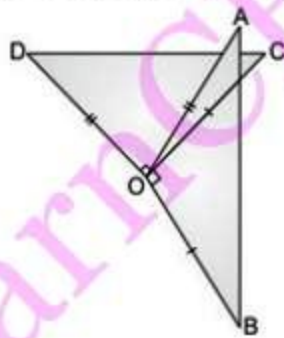
- (i) $\triangle AMC \cong \triangle BMD$
- (ii) $\angle DBC$ is a right angle.



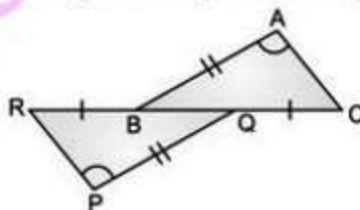
17. In the given figure, AD is the bisector of $\angle BAC$ and $\angle CPD = \angle BPD$. Prove that $\triangle CAP \cong \triangle BAP$ and $CP = BP$.



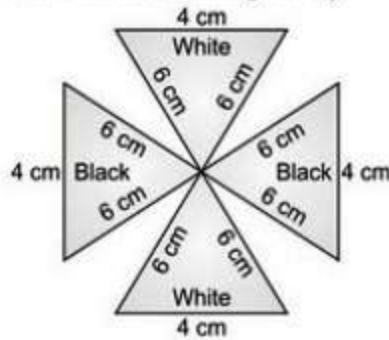
18. In figure, $OA \perp OD$, $OC \perp OB$, $OD = OA$ and $OC = OB$. Prove that $AB = CD$.



19. In the given figure, $BA \perp CA$, $RP \perp QP$, $AB = PQ$ and $BR = CQ$. Prove that $AC = PR$.



20. Black and white coloured triangular sheets are used to make a toy as shown in figure. Find the total area of black and white colour sheets used for making the toy.



SECTION 'D'

Question numbers 21 to 31 carry four marks each.

21. If $a = \frac{2-\sqrt{5}}{2+\sqrt{5}}$, $b = \frac{2+\sqrt{5}}{2-\sqrt{5}}$, then find $(a+b)^3$.

OR

If $x + \frac{1}{x} = 5$, evaluate $x^2 + \frac{1}{x^2}$.

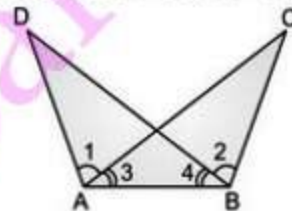
22. Prove that : $(x+y)^3 + (y+z)^3 + (z+x)^3 - 3(x+y)(y+z)(z+x) = 2(x^3 + y^3 + z^3 - 3xyz)$.
23. Factorise completely : $x^8 - y^8$.
24. Simplify and factorise : $(a+b+c)^2 - (a-b-c)^2 + 4b^2 - 4c^2$.
25. Find the value of $x^3 - 8y^3 - 36xy - 216$, when $x = 2y + 6$.
26. The following table gives the number of pairs of shoes and their corresponding price. Plot these as ordered pairs and join them. What type of graph do you get ?

Number of Pairs of shoes	1	2	3	4	5	6
Corresponding prices (in hundred of rupees)	5	10	15	20	25	30

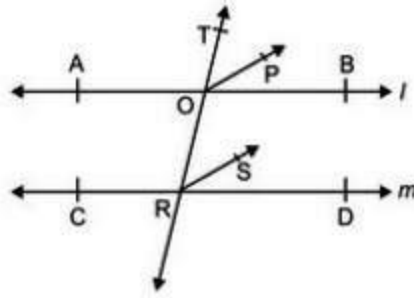
27. It is given that $\angle XYZ = 64^\circ$ and XY is produced to a point P . Draw a figure from the given information . If ray YQ bisects $\angle ZYP$. find $\angle XYQ$ and reflex $\angle QYP$.
28. In $\triangle ABC$, if AB is the greatest side, then prove that $\angle C > 60^\circ$.

OR

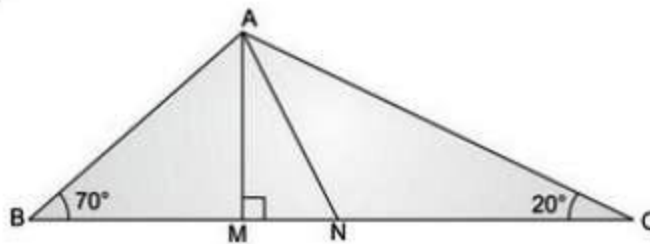
In figure, $\triangle ABC$ and $\triangle ABD$ are such that $AD = BC$, $\angle 1 = \angle 2$ and $\angle 3 = \angle 4$. Prove that $BD = AC$.



29. In the following figure $l \parallel m$ and RT is a transversal and OP and RS are respectively the bisectors of corresponding angles $\angle TOB$ and $\angle ORD$.



- (i) Prove that $OP \parallel RS$.
 (ii) Which mathematical concept is used in this problem ?
 (iii) What is its value ?
30. In the given figure, $AM \perp BC$ and AN is the bisector of $\angle A$. If $\angle ABC = 70^\circ$ and $\angle ACB = 20^\circ$, find the value of $\angle MAN$.



31. Radha made a picture of an aeroplane with coloured paper as shown in figure. Find the total area of the paper used.

