



MATHEMATICS – Practice Paper
Class – IX

Time Allowed: 3 hours

Maximum Marks: 90

General Instructions:

1. All questions are **compulsory**.
2. The question 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 in this question paper.
4. Use of calculator is not permitted.

SECTION-A

Question numbers **1** to **4** carry one mark each.

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|---|--|---|
| 1 | Find the value of $\left(\frac{64}{25}\right)^{\frac{2}{3}}$. | 1 |
| 2 | Check whether x^{22} is a factor of $x^3 - 23x^2 + 15x - 26$. | 1 |
| 3 | If lines l and m are parallel and lines m and n are also parallel, then what can you say about the lines l and n ? | 1 |
| 4 | Find the reflection of the point $(2, 3, 2)$ in y -axis. | 1 |

SECTION-B

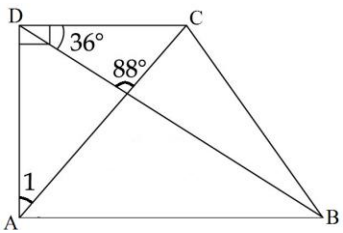
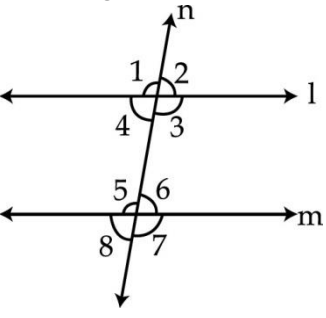
Question numbers **5** to **10** carry two marks each.

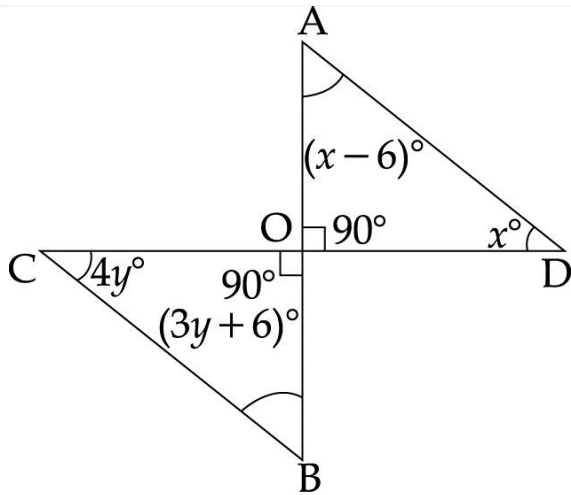
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|---|--|---|
| 5 | If $z = 0.064$, then find the value of $\left(\frac{1}{z}\right)^{\frac{1}{3}}$. | 2 |
|---|--|---|

6	Evaluate using suitable identity : $(105)^3$	2
7	In the figure, $l \parallel m$. If $\angle ABC = \angle ABD = 40^\circ$ and $\angle A = 90^\circ$, then prove that $\triangle BCD$ is isosceles.	2
8	In the given figure, if point C lies between A and B, then prove that $AB > AC$. Which Euclid's axiom is applied by you ? 	2
9	Write coordinates of the point which is the reflection of $(3, 5)$ in y - axis. Then, write coordinates of the point which is the reflection of this point in x - axis.	2
10	The longest side of a right angled triangle is 125 m and one of the remaining two sides is 100 m. Find its area using Heron's formula.	2
SECTION-C		
Question numbers 11 to 20 carry three marks each.		
11	Examine whether $\sqrt{2}$ is rational or irrational	3
12	Find three irrational numbers between $\frac{5}{7}$ and $\frac{9}{11}$.	3
13	By long division write the quotient and remainder, when $2x^4 + 13x^3 + 14x^2 + 21x$ is divided by $x^2 + 2x + 1$.	3
14	Factorise : $(x^2 + 25x + 16)^2 (x^2 + 26x + 18)^2$.	3
15	In a triangle ABC, X and Y are the points on AB and BC respectively. If $AX = XC$ and $BX = XY$, show that $AX = CY$.	3

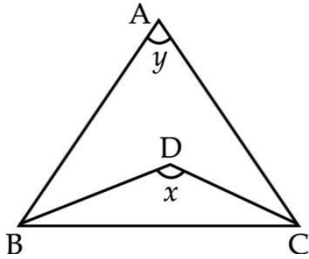
16	In the the figure, if $\angle PQR = \angle PRQ$, then prove that $\angle PQS = \angle PRT$.	3
17	If a transversal intersects two parallel lines, then prove that bisectors of alternate interior angles are parallel.	3
18	In the given figure, if $AB \parallel CD \parallel EF$, find the value of $(y - 2x) : (y + x)$:	3
19	Plot the points $A(2, 1)$, $B(5, 1)$, $C(5, 6)$ and $D(2, 6)$ in the cartesian plane. Identify the figure ABCD. Find its area.	3
20	The adjacent sides of a parallelogram ABCD measure 34 cm and 20 cm and the diagonal AC measures 42 cm. Find the area.	3
SECTION-D		
Question numbers 21 to 31 carry four marks each.		
21	Give an example of two irrational numbers whose : (i) difference is an irrational number (ii) sum is an irrational number (iii) product is an irrational number (iv) division is an irrational number Justify also.	4
22	Express in the form of $\frac{p}{q}$:	4

$0.\overline{381} \ 1.\overline{27}$

23	If $ab \mid bc \mid ca \mid 50$, find value of $\frac{1}{a^2} \cdot \frac{1}{bc} \cdot \frac{1}{b^2} \cdot \frac{1}{ca} \cdot \frac{1}{c^2} \cdot \frac{1}{ab}$	4
24	Using factor theorem, find the value of 'a', if $2x^4 + 2ax^3 + 14x^2 + 2x + 12$ is divisible by $2x + 1$.	4
25	Verify if 23 and 4 are zeroes of the polynomial $2x^3 + 23x^2 + 223x + 112$. If yes, then factorise the polynomial.	4
26	If $a \mid b \mid c \mid 50$, then prove that $a^4 \mid b^4 \mid c^4 \mid 52(b^2c^2 + c^2a^2 + a^2b^2)$	4
27	In the given figure, on a quadrilateral ABCD shaped land in a village the Panchayat has constructed a school especially for girls. What value are they exhibiting by doing so? How many triangles can be seen in the given figure? Find measure of $\angle 1$.	4
		
28	Solve the equation $a^2 + 35 = 75$ and state which axiom you use here. Also give two more axioms other than the axiom used in the above situation.	4
29	In the figure, if $l \parallel m$, $\angle 1 = 5x + 8$, $\angle 4 = 45x + 12$ and $\angle 6 = 3y + 20$, find $\angle 7$ and $\angle 8$.	4
		
30	Find x and y in the given figure.	4



31 In $\triangle ABC$ of the figure, BD and CD are internal bisectors of $\angle B$ and $\angle C$ respectively. Prove that $180^\circ = 2x + y$.



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