SIMS®

(SCHOLARS INTEGRAL MATHS & SCIENCE OLYMPIADS-HYD)

GRADE X

BIGGEST STATE LEVEL OLYMPIAD : 2025-26

SIMO QUESTION PAPER : STAGE - I

MAX. MARKS : 90 **TIME: 60 MIN.**

NAME OF THE STUDENT	:	.....
HALL TICKET NUMBER	:	.....
NAME OF THE SCHOOL	:	.....

INSTRUCTIONS:

- This question paper contains 30 questions.
- First 25 questions (1 to 25) are single correct answer type. Each question carries 3 marks.
- Next 5 questions (26 to 30) are one or more than one correct answer type. Each question carries 3 marks.
- No negative marks.
- You have not allowed to use a calculator or any other electronic devices in the examination hall.
- Read the instructions given in the answer sheet(OMR sheet) before answering the questions.
- The answer sheet should be returned to the invigilator before leaving the examination hall (You can retain the question paper with you)
- Results will be available at www.simsolympiads.com

Single Correct Answer Type: 25 × 3 = 75

1. If a and b are two rational numbers and $\frac{3+\sqrt{5}}{3-\sqrt{5}} = a + b\sqrt{5}$, then a + b = _____.

1) 10 2) $\frac{7}{2}$ 3) 5 4) 2

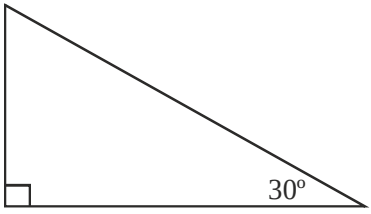
2. The value of $\sqrt{6+\sqrt{6+\sqrt{6+.....}}}$ is _____.

1) 4 2) 3 3) –2 4) 6

3. If the expression $4x^3 - 7x^2 + 6x - 3k$ is exactly divisible by (x + 2) then the value of 'k' is

1) 4 2) –18 3) 36 4) –24

4. A sheet metal worker needs to cut a piece of metal in the shape shown below in inches. What is the length of the longest side of this triangle ?



1) 9 2) $12\sqrt{3}$ 3) 18 4) $6\sqrt{3}$

5. A card is drawn from a packet of 100 cards numbered 1 to 100. The probability of drawing a number which is a perfect square is _____.

1) $\frac{1}{10}$ 2) $\frac{3}{100}$ 3) $\frac{9}{100}$ 4) $\frac{2}{25}$

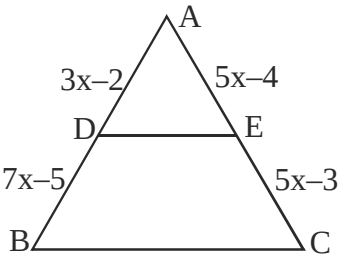
6. The remainder when 3^{10} is divided by 7 is _____.

1) 1 2) 4 3) 6 4) 2

7. A fraction $\frac{5x-11}{2x^2+x-6}$ is obtained by adding two fractions $\frac{A}{x+2}$ and $\frac{B}{2x-3}$, then (A–B) = _____.

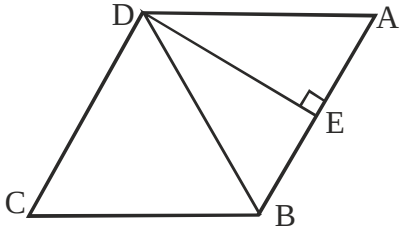
1) 3 2) 4 3) 5 4) 2

8. In the figure, if DE || BC and AD = 3x–2, AE = 5x–4, BD = 7x–5 and CE = 5x–3, then the value of x is



1) 1 2) 2 3) 7 4) 4

9. ABCD is a rhombus in which the altitude from D to side AB bisects AB, then the measure of angle A is



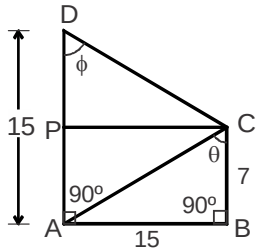
1) 30^o 2) 60^o 3) 45^o 4) 120^o

10. The marks in Science of 80 students of class X are given below, then the mode of their marks obtained by the students in Science

Marks	0-10	10-20	20-30	30-40	40-50	50-60	60-70	70-80	80-90	90-100
Frequency	3	5	16	12	13	20	5	4	1	1

1) 54.82 2) 46.82 3) 53.50 4) 53.18

11. In the given figure, $\angle ABC = \angle BAD = 90^o$, AB = 15, BC = 7, AD = 15 then $\sin\phi$ is ____.



1) $\frac{15}{17}$ 2) $\frac{3}{5}$

3) $\frac{8}{17}$ 4) $\frac{7}{17}$

12. How many ways can 4 prizes be given away to 3 boys, if each boy is eligible for all the prizes ?

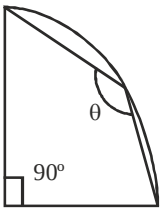
1) 256 2) 24 3) 12 4) 64

13. Subhash has 3 times as many two rupee coins as he has five rupee coins. If he has in all a sum of ` 77. How many coins of each denominations does he have ?

1) ` 5 coins -7; ` 2 coins-21 2) ` 5 coins-8; ` 2 coins-24

3) ` 5 coins-6; ` 2 coins-18 4) ` 5 coins-21; ` 2 coins-7

14. What is the angle θ in the quadrant of a circle shown below ?



1) 120^o 2) 90^o

3) 135^o 4) $90^o < \theta < 120^o$

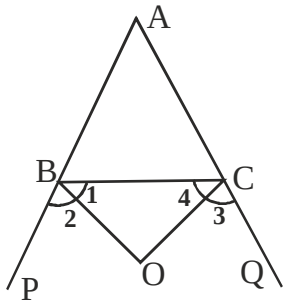
15. In the figure, BO and CO are angle bisectors of external angles of ΔABC, then the measure of ∠BOC is

1) $90^o - \frac{1}{2}\angle A$

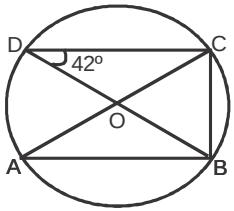
2) $90^o + \frac{1}{2}\angle A$

3) $180^o - \frac{1}{2}\angle A$

4) $180^o + \frac{1}{2}\angle A$



16. In the given circle, O is a centre and ∠BDC = 42°, the measure of ∠ACB is equal to



1) 42° 2) 45° 3) 48° 4) 60°

17. If 3 cotθ = 5, then $\frac{5\sin\theta - 3\cos\theta}{5\sin\theta + 3\cos\theta}$ = _____.

1) $\frac{5}{3}$ 2) 0 3) $\frac{8}{17}$ 4) $\frac{4}{5}$

18. The descending order of the surds $\sqrt[6]{3}, \sqrt[3]{2}, \sqrt[9]{4}$ is

1) $\sqrt[9]{4}, \sqrt[6]{3}, \sqrt[3]{2}$ 2) $\sqrt[9]{4}, \sqrt[3]{2}, \sqrt[6]{3}$ 3) $\sqrt[3]{2}, \sqrt[6]{3}, \sqrt[9]{4}$ 4) $\sqrt[6]{3}, \sqrt[9]{4}, \sqrt[3]{2}$

19. If $\tan^2\theta + 3 = 3\sec\theta$, then the measure of θ is _____.

1) 30° 2) 90° 3) 45° 4) 60°

20. Let A and B are non-empty sets. If n(A) = 40, n(B) = 25 and n(A ∪ B) = 60, then n(AΔB) is equal to ___.

1) 55 2) 65 3) 15 4) 20

21. In a class of 26 students, 8 take Tea but not Coffee and 16 take Tea. The number of students take Coffee but not Tea is_____.

1) 16 2) 18 3) 10 4) 8

22. The angle of elevation of the top of a tower from a point on the ground, which is 30m away from the foot of the tower is 30^0. The height of the tower is _____.

1) $8\sqrt{3}$ m 2) $10\sqrt{3}$ m 3) $\frac{10}{\sqrt{3}}$ m 4) $30\sqrt{3}$ m

23. For the given frequency distribution, the value of mean is:

x	**:**	**0.1**	**0.2**	**0.3**	**0.4**	**0.5**	**0.6**
f	**:**	**20**	**60**	**20**	**40**	**10**	**50**

1) 0.3 2) 0.71 3) 33.8 4) 0.36

24. A vertical stick 20 m long casts a shadow 10 m long on the ground. At the same time, a tower casts a shadow 50 m long on the ground. The height of the tower is _____.

1) 250 m 2) 25 m 3) 100 m 4) 200 m

25. Five years hence, father's age will be three times the age of his son. Five years ago, father was seven times as old as his son. Find their present ages.

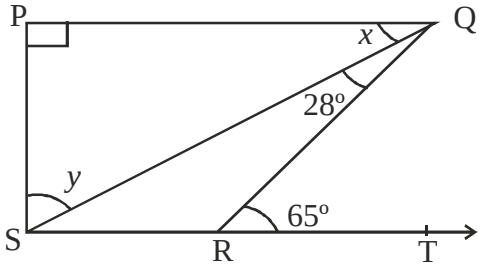
1) 10 yrs., 40 yrs. 2) 5 yrs., 50 yrs.
3) 15 yrs., 45 yrs. 4) 2 yrs., 20 yrs.

One or more Correct Answer Type: **5× 3 = 15**

26. If n is natural number, then $9^{2n} - 4^{2n}$ is always divisible by

1) 13 2) 4 3) 5 4) 9

27. In the given figure, if PQ ⊥ PS, PQ || SR, ∠SQR = 28° and ∠QRT = 65°, then the values of x and y are _____.



1) x = 37° 2) y = 93° 3) x = 87° 4) y = 53°

28. The altitude of a right triangle is 7 cm less than its base. If the hypotenuse is 13 cm, then the values of other two sides are _____.

1) 14 cm 2) 12 cm 3) 5 cm 4) 6 cm

29. If (secθ + tanθ) = x, then

1) $\tan\theta = \frac{2x}{x^2-1}$ 2) $\cos\theta = \frac{1+x^2}{2x}$

3) $\text{cosec}\theta = \frac{x^2+1}{x^2-1}$ 4) $\sec\theta = \frac{x^2+1}{2x}$

30. Factors of $-x^2 + \sqrt{3}x + 6$ are _____.

1) $\sqrt{3} + x$ 2) $-2\sqrt{3} + \sqrt{3}x$

3) $2\sqrt{3} - x$ 4) $x - \sqrt{3}$

*** ***ALL THE BEST*** ***

ROUGH WORK