

**S****I****M****S[®]****CLASS
VII**

(SCHOLARS INTEGRAL MATHS & SCIENCE OLYMPIADS)

BIGGEST NATIONAL LEVEL OLYMPIAD : 2016-17**MAX. MARKS : 100****SIMO QUESTION PAPER****TIME: 60 MIN.**

NAME OF THE STUDENT :

HALL TICKET NUMBER :

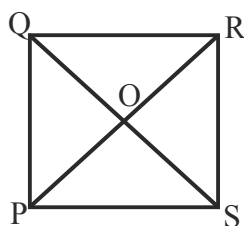
NAME OF THE SCHOOL :

INSTRUCTIONS:

- ✦ This question paper contains 41 questions.
- ✦ First 32 questions (1 to 32) are single correct answer type. Each question carries 2 marks.
- ✦ Next 9 questions (33 to 41) are more than one correct answer type. Each question carries 4 marks.
- ✦ Marks are non deducted for wrong answers. (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.org

SINGLE CORRECT ANSWER TYPE:**32 × 2 = 64**

1. The area of one side of a rectangular box is 126 cm^2 . The area of another side of the rectangular box is 153 cm^2 . The area of the top of the rectangular box is 238 cm^2 . Then the volume of the box is
 1) 2140 cm^3 2) 2142 cm^3 3) 2145 cm^3 4) None of these
2. The diagonals of square PQRS intersect at O. Triangle SOR has area 16 sq.units. The length of PQ is



- 1) 2 units 2) 8 units 3) 6 units 4) 12 units
3. Let $A = 2015201520152015 \times 20162016$ and $B = 2016 \times 20152015$, the value of $\frac{A}{B}$ is
 1) 1000100010001 2) 1001001001 3) 101010101 4) 100000001
4. Evaluate the value of a in the following. $\frac{1}{1 + \frac{1}{2 + \frac{1}{a + \frac{1}{2}}}} = \frac{16}{23}$

1) 2

2) 3

3) 4

4) 1

5. $1 - \frac{1 - \frac{1}{2}}{1 + \frac{1}{2}} \div \frac{1 + \frac{1}{2}}{1 - \frac{1}{2}}$ equals

- 1) $\frac{7}{9}$ 2) $\frac{5}{6}$ 3) $\frac{1}{2}$ 4) None of these

6. $20 - \{(4 + \overline{7-8}) - 14 \div 2\}$ is equal to

- 1) 22 2) 26 3) 24 4) 28

7. There are 180 apples in a basket, 40% of them are red and the rest are green. 25% of the green apples are bad in quality. How many green apples are not bad in quality?

- 1) 51 2) 72 3) 81 4) 92

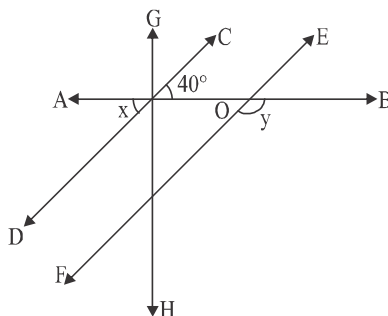
8. If 45% of $x + 30\%$ of $90 = 30\%$ of 210 , then what is the value x ?

- 1) 36 2) 48 3) 72 4) 80

9. $\left(\frac{p^{a^4}}{p^{b^4}}\right)^{1/a^2+b^2} \times \left(\frac{p^{b^4}}{p^{c^4}}\right)^{1/b^2+c^2} \times \left(\frac{p^{c^4}}{p^{a^4}}\right)^{1/c^2+a^2}$ is equal to

- 1) 1 2) 2 3) 3 4) 4

10. In the figure, $CD \parallel EF$, which of the following options gives the correct values of x and y ?



- 1) $x = 40^\circ$, $y = 140^\circ$ 2) $x = 140^\circ$, $y = 40^\circ$ 3) $x = 50^\circ$, $y = 140^\circ$ 4) $x = 140^\circ$, $y = 120^\circ$

11. If $\frac{(-2)^x \times (-2)^7}{3 \times 4^6} = \frac{1}{12}$, then the value of x is

- 1) 3 2) -3 3) 2 4) -4

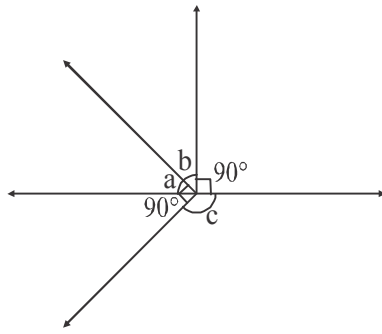
12. The perimeter of a triangle is $8p^2 - 9p + 9$ and two of its sides are $2p^2 - 3p + 1$ and $5p^2 - p + 4$. Then, third side of the triangle is

- 1) $2p^2 - 6p + 5$ 2) $p^2 - 5p + 4$ 3) $3p^2 - 2p + 1$ 4) $4p^2 + 3p + 6$

13. A playground in a town is in the form of a kite. The perimeter of playground is 106 m. If one of its sides is 23 m, then the length of other side is

- 1) 60 m 2) 30 m 3) 23 m 4) 46 m

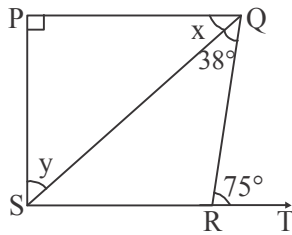
14.



In the above figure, if $a : b = 2 : 3$, then $\angle c$ is equal to

- 1) 54° 2) 126° 3) 36° 4) 144°

15. In the given figure, if $PQ \perp PS$, $PQ \parallel SR$, $\angle SQR = 38^\circ$ and $\angle QRT = 75^\circ$, then the value of $|x - y|$ is

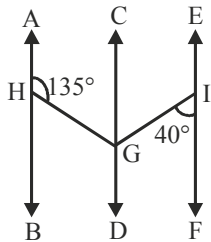


- 1) 47° 2) 16° 3) -16° 4) 75°

16. The HCF of 0.1, 0.01 and 0.001 is

- 1) 0.1 2) 0.01 3) 0.001 4) 10

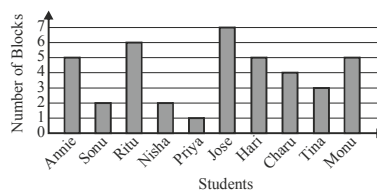
17.



In the figure, $AB \parallel CD \parallel EF$, then the value of $\angle HGI$ is

- 1) 175° 2) 85° 3) 95° 4) None of these

18. The bargraph shown below represents the number of blocks each of 10 students walks to school each day.



Based on the graph what is the medium number of blocks that these students walk to school each day.

- 1) 3.5 2) 4 3) 5 4) 4.5

19. If $a = \frac{1}{5}$, then the value of $\left\{ - \left(- \frac{a-1}{a} \right) \right\}$ is

- 1) $\frac{4}{5}$ 2) $-\frac{4}{5}$ 3) $-\frac{1}{\frac{1}{4}}$ 4) $-\frac{1}{4}$

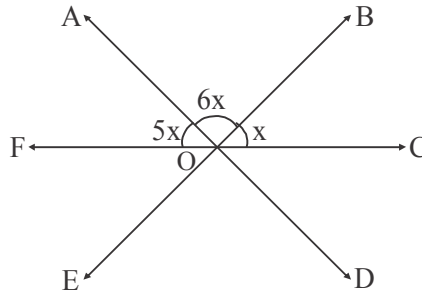
20. If $10^m \times 10^n \times 10^p = 10^6$, then the average of m, n and p is

- 1) 0 2) 1 3) 3 4) 2

21. It is given that $\sqrt{4761} = 69$, then the value of $\sqrt{4761} + \sqrt{47.61} + \sqrt{0.4761}$ is

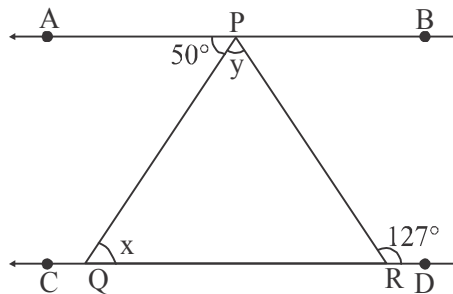
- 1) 77 2) 75.59 3) 76.59 4) 70.59

22. In the given figure, find the value of $\angle EOD$.

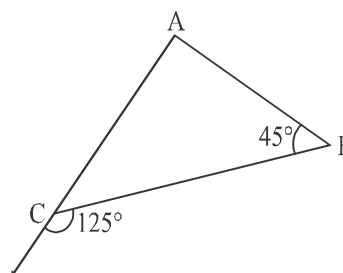


- 1) 15° 2) 70° 3) 45° 4) 90°

23. In the given figure, if $AB \parallel CD$, $\angle APQ = 50^\circ$ and $\angle PRD = 127^\circ$, then the value of $(x + y)$ is

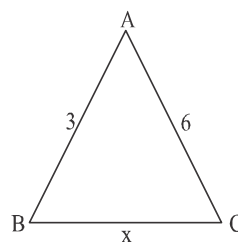


- 1) 137° 2) 127° 3) 53° 4) 27°

24.  Which is the longest side of the given triangle ?

- 1) AB 2) AC 3) BC 4) Can't say

25. In the given figure, the value of x to form a triangle is



- 1) $x \in \text{real number}$ 2) $x \in [3, 6]$ 3) $x \leq 6$ 4) $3 < x < 9$

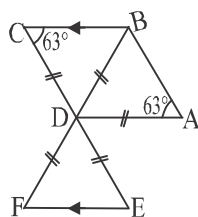
26. Teja walked 20 kms to the South, then turned right and walked 10 kms. She then turned North and walked 35 kms. She again turned right and walked 10 kms. How far is she from her house ?

- 1) 15 kms 2) 10 kms 3) 25 kms 4) 20 kms

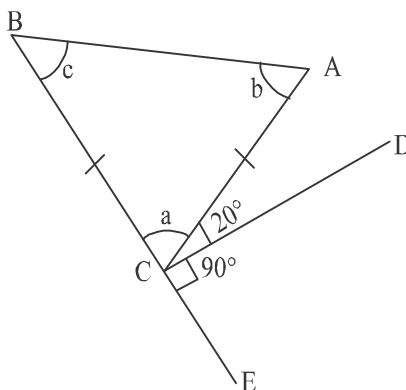
27. In a row of cadets(NCC), Ramana is standing at 13th position from back, and Sarath is standing at 7th position from front. If Ramana and Sarath, interchanges their position, Sarath becomes 12th from front. How many cadets are their in the row ?
 1) 25 2) 21 3) 26 4) 24
28. When 16 is added to 80 % of a number, it gives the number itself. Find the number.
 1) 80 2) 96 3) 64 4) 8
29. What should be subtracted from $(-2x^3 + 5x^2 - x + 8)$ to get $5x^2 - 4x + 12$?
 1) $2x^3 + 3x - 4$ 2) $-2x^3 - 3x + 4$ 3) $-2x^3 + 3x - 4$ 4) $2x^3 - 3x + 4$
30. Three times an angle is equal to two times its complement. What is the value of angle ?
 1) 180° 2) 120° 3) 36° 4) 30°
31. If $a * b = \frac{ab}{a+b}$, then $\frac{1}{1*2} - \frac{1}{2*3} + \frac{1}{3*4} - \frac{1}{4*5} + \dots - \frac{1}{2000*2001} =$
 1) $\frac{1}{2}$ 2) $\frac{2001}{2000}$ 3) $\frac{2}{2001}$ 4) $\frac{2000}{2001}$
32. There are two boxes of chocolates, x and y. The ratio of weight of x to weight of y is 4 : 1. If 39 of chocolate is transferred from x to y, then the ratio of weight of x to weight of y is 7 : 5. Find the total weight of the two boxes of chocolates.
 1) 36 2) 144 3) 180 4) 72

MORE THAN ONE CORRECT ANSWER TYPE:**9 × 4 = 36**

33. Find interest and amount when Principal = ₹ 200, Rate = 12% p.a., Time = 6 months.
 1) A = ₹ 220 2) I = ₹ 12 3) I = ₹ 15 4) A = ₹ 212
34. The age of Nishant and Sanjay are in the ratio 4 : 5. Ten years hence the ratio of their ages will be 6 : 7. Find their present ages.
 1) 13 yrs. 2) 25 yrs. 3) 20 yrs. 4) 22 yrs.
35. In the given figure, if BC is parallel to EF and DC = DB = DA = DF, then



- 1) $\angle ADE = 54^\circ$ 2) $\angle CDF = 126^\circ$ 3) $\angle EDF = 54^\circ$ 4) $\angle ADB = 54^\circ$
36. From the given figure, find the values of $\angle a$, $\angle b$ and $\angle c$.



- 1) $a = 65^\circ$ 2) $b = 55^\circ$ 3) $c = 55^\circ$ 4) $a = 70^\circ$

37. In any triangle, the sum of the measures of the angles is 180° . In $\triangle ABC$, if $\angle A$ is three times as large as $\angle B$, $\angle C$ measures 20° less than $\angle B$, then
- 1) $\angle B = 30^\circ$ 2) $\angle B = 40^\circ$ 3) $\angle A = 120^\circ$ 4) $\angle C = 20^\circ$
38. If $(2)^{2x-2} = (8)^{y-1} = (16)^{x-25}$, then
- 1) $x = 49$ 2) $x = 77$ 3) $x + y = 92$ 4) $x + y = 82$
39. If $a + b = 11$ and $ab = 30$, then the value of $(a - b)$ is
- 1) 1 2) -1 3) -2 4) 2
40. ABCD is a parallelogram in which $\angle A = 78^\circ$. Then the measure of
- 1) $2\angle A - \angle B = 54^\circ$ 2) $\angle B = 102^\circ$ 3) $\angle DCB - \frac{1}{2}\angle ABC = 27^\circ$ 4) $\angle A + \angle C = 156^\circ$
41. If $\left[\left\{ \left(\frac{1}{7^2} \right)^{-2} \right\}^{\frac{1}{3}} \right]^{\frac{1}{4}} = 7^m$, then
- 1) $3m + 1 = 0$ 2) $3m - 1 = 0$ 3) $9m^2 - 1 = 0$ 4) $9m^2 + 1 = 2$

❖ ❖ ❖ *All The Best* ❖ ❖ ❖