Primrose Schools

Affiliated to the CISCE Board for ICSE & ISC
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An ISO 9001:2015 Certified Institution

NATIONAL PRIMTALENT OLYMPIAD EXAMINATIONS

MATHEMATICS

CLASS 8	
	Name :
	Section :
	Roll no :

Guidelines for the Candidates	
1	Please check your Name, Class and Section on the OMR sheet provided to you.
2	In case, OMR sheet with your name is missing, please fill in information about yourself in the blank sheet provided before start of exam.
3	All questions are compulsory. There is no negative marking. Use of calculator is not permitted.
4	There is only **ONE** correct answer. Choose only ONE option for an answer.
5	To mark your choice of answers by darkening the circles in OMR sheet, use **HB Pencil or Blue/Black ball point pen** only.
6	Rough work should be done in the blank space provided in the booklet.
7	Return the OMR sheet to the invigilator at the end of the exam
8	Please fill in your personal details in space on the top of this page before attempting the paper

Section A - Logical Reasoning

1. A is to the South of B, and C is to the East of B. In what direction is A with respect to C?

   A) South B) East C) South-West D) South-East

2. In a certain code language,
   '134' means 'good and tasty';
   '478' means 'see good pictures' and
   '729' means 'pictures are faint'.
   Which of the following digits stands for 'see'?

   A) 9 B) 2 C) 1 D) 8

3. What is the next shape?

A)  B)  C)  D) 

4. One number in the following sequence is incorrect. 4, 13, 22, 31, 40, 49, 58, 69, 76, 85, ...
   Suggest the change that will correct the sequence.

   A) 76 should be replaced by 78 B) 69 should be replaced by 67
   C) 76 should be replaced by 74 D) 69 should be replaced by 65

5. What is the smallest number of ducks that could swim accordig to this information. "Two ducks in front of a duck, two ducks behind a duck and a duck between two ducks."

   A) 3 B) 5 C) 4 D) 7

6. The value of

$$\left\{\left(\frac{1}{3}\right)^{-1}-\left(\frac{1}{4}\right)^{-1}\right\}+\left\{\left(\frac{1}{4}\right)^{-1}-\left(\frac{1}{5}\right)^{-1}\right\}+\left\{\left(\frac{1}{5}\right)^{-1}-\left(\frac{1}{6}\right)^{-1}\right\}^{2}$$

is _____.

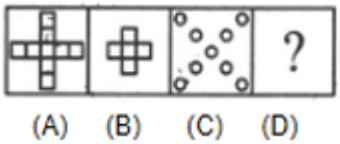
A) 1 B) 3 C) 0 D) -1

7. In code language ROSE is written as ORES. How is LOSE written in that code?

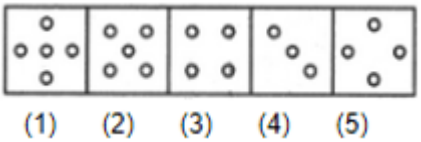
A) LOES B) OSLE C) OLES D) OSEL

8. Select a suitable figure from the Answer Figures that would replace the question mark (?).

Problem Figures:



Answer Figures:



A) 1 B) 2 C) 3 D) 4

9. Please find the missing number of series.

4, 2, 20, 10, 100, ?, 500

A) 250 B) 40 C) 50 D) 150

10. Identify the figure that completes the pattern.

A) 1 B) 2 C) 3 D) 4

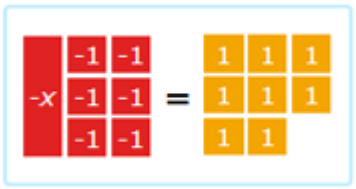
Section B – Mathematical Reasoning

11. Simplify: $\left[3\frac{1}{4} \div \left\{1\frac{1}{4} - \frac{1}{2}\left(2\frac{1}{2} - \left(\overline{\frac{1}{4} + \frac{1}{6}}\right)\right)\right\}\right]$

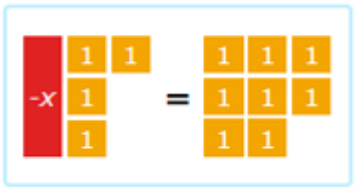
A) 78 B) 88 C) 98 D) 108

12. Which set of algebra tiles represents the quuation $-x + 4 = 8$?

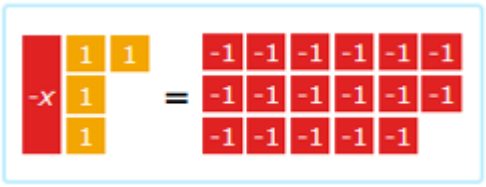
A)



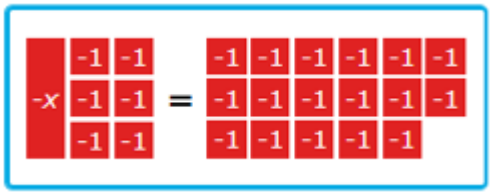
B)



C)



D)



13. The length of Denelle's rectangular lounge is 12 metres and the distance between opposite corners is 13 metres. What is the width of Denelle's lounge?

A) 225 B) 15 C) 125 D) 5

14. Which shows the expression written in exponent notation?

$10 \times 10 \times 10 \times 10$

A) 4^{10} B) 4^{1000} C) 10^4 D) 10^{10}

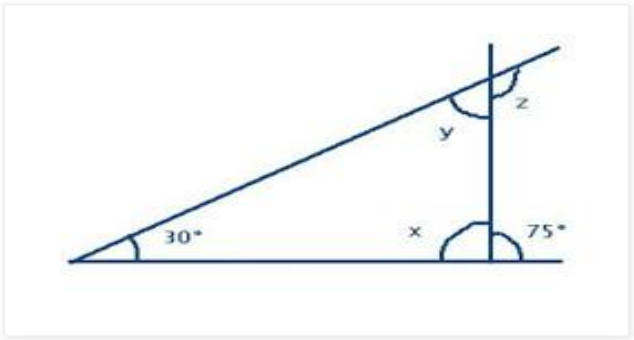
15. The maximum number of students among them 1001 pens and 910 pencils can be distributed in such a way that each student gets the same number of pens and same number of pencils is:

A) 91 B) 910 C) 1001 D) 1911

16. What decimal of an hour is a second?

A) 0.00027 B) 0 .00023 C) 0.00057 D) 0.0021

17. What are the values of x, y and z in the figure shown below?



A) $105°,\ 45°,\ 135°$ B) $135°,\ 45°, 105°$

C) $105°,\ 135°, 45°$ D) $45°, 135°, 105°$

18. How many pieces of 85 cm length can be cut from a rod of 42.5 metres long?

A) 15 B) 20 C) 2 D) 50

19. Sahil took a loan for 6 years at the rate of 5% per annum on Simple Interest. If the total interest paid was Rs. 1230, the principal was

A) 4100 B) 4200 C) 4300 D) 4400

20. Two whole numbers whose sum is 64 cannot be in the ratio?

A) 5 : 3 B) 7 : 1 C) 3 : 4 D) 9 : 7

21. If 40 % of a number is equal to two-third of another number, what is the ratio of first number to the second number?

A) 2 : 5 B) 3 : 7 C) 5 : 3 D) 7 : 3

22. If 15% of x is the same as 20 % of y, then $x : y$ is _____

A) 3: 4 B) 17 : 16 C) 4 : 3 D) 16 : 17

23. If $\frac{233}{0.233} = \frac{23.3}{x}$, what is the value of x

A) 233 B) 23.3 C) 0.233 D) 0.0233

24. The fraction $878\frac{21}{10000}$ in decimal form is _____

A) None of these B) 878.0021 C) 878.00021 D) 878.021

25. If one-third of one-fourth of a number is 15, then three-tenth of that number is

A) 35 B) 36 C) 45 D) 54

26. $9 + \frac{3}{4} + 7 + \frac{2}{17} - \left(9 + \frac{1}{15}\right) = ?$

A. $7 + \frac{719}{1020}$

B. $9 + \frac{817}{1020}$

C. $9 + \frac{719}{1020}$

D. $7 + \frac{817}{1020}$

27. How many prime numbers are there below 50?

A. 16

B. 15

C. 14

D. 18

28. $\frac{(489 + 375)^2 - (489 - 375)^2}{(489 \times 375)} = ?$

A. 144

B. 864

C. 2

D. 4

29. Which one of the following numbers is completely divisible by 99?

A) 3572404

B) 135792

C) 913464

D) 114345

30. The difference between the place values of two sevens in the numeral 69758472 is

A) 0

B) 6993

C) 699930

D) None of these

Section C – Everyday Maths

31. The length of a room is 5.5m and width is 3.75m. What is the cost of paying the floor by slabs at the rate of Rs.800 per sq. metre?

A) Rs.12000

B) Rs.19500

C) Rs.18000

D) Rs.16500

32. 666 ÷ 6 ÷ 3 = ?

A. 37

B. 333

C. 111

D. 84

33. Find the median of the set of numbers: 100, 200, 450, 29, 1029, 300 and 2001

A) 300 B) 29 C) 7 D) 4,080

34. Which of the following has the most number of divisors?

A) 99 B) 101 C) 176 D) 182

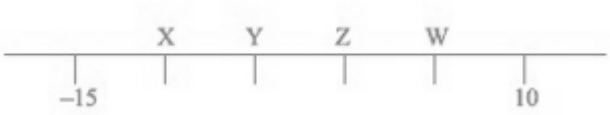
35. A student can divide her books into goups of 5, 9 and 13. What is the smallest possible number of the books?

A) 487 B) 585 C) 635 D) 705

36. How much time will it take for an amount of Rs. 900 to yield Rs. 81 as interest at 4.5% per annum of simple interest?

A) 2 years B) 3 years C) 1 year D) 4 years

37. On the following number line value 'Zero' is shown by the point



A) X B) Y C) Z D) W

38. Which of the following is not equal to 1?

(a) $\frac{2^3\times3^2}{4\times18}$ (b) $\left[(-2)^3\times(-2)^4\right]\div(-2)^7$

(c) $\frac{3^0\times5^3}{5\times25}$ (d) $\frac{2^4}{(7^0+3^0)^3}$

39. The length of a side of square is given as $2x + 3$. Which expression represents the perimeter of the square?

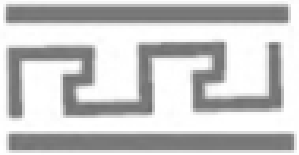
A) $2x + 16$ B) $6x + 9$ C) $8x + 3$ D) $8x + 12$

40. Which of the following has the largest value?

(a) 0.0001 (b) $\frac{1}{10000}$ (c) $\frac{1}{10^6}$ (d) $\frac{1}{10^6} \div 0.1$

Section D - Higher Order Thinking

41. The order of rotational symmetry in the figure is



A) 4 B) 2 C) 1 D) Infinitely many

Directions: Study the following information carefully and answer the questions (42-44) given below:

In a certain code language:
'India and Australia relation' is written as 'xz mo nk mn',
'India increase in Power' is written as 'ij fa rs mn',
'Relation Power and Inspection' is written as 'mo rs xz da' and
'India relation in Inspection' is written as 'xz fa mn da'.

42. What is the code for 'relation Power' in the given code language?
(A) xz fa
(B) xz rs
(C) da fa
(D) rs da

43. What is the code for 'increase' in the given code language?
(A) ij
(B) fa
(C) rs
(D) da

44. What is the code for ‘Power’ in the given code language?
(A) ij
(B) fa
(C) rs
(D) da

45. If all the letters in the word QUESTION are arranged in alphabetical order from left to right in such a way that vowels are arranged first followed by consonants, then how many letters are there in between U and Q after the arrangement?
(A) two
(B) one
(C) none
(D) three

Directions: Study the following number sequence and answer the questions (46-47) given below:

1 5 9 8 3 6 5 4 7 9 5 1 3 5 4 6 3 2 8 9 5 6 9 8 3 4 7

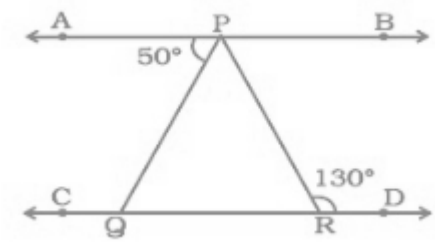
46. How many such 3s are in given number sequence that are immediately preceding by an even number but not followed by a number that is not divisible by 2?

A) None
B) 4
C) 2
D) 3

47. Which of the following is the fifth to the left of the seventh from the right end of the given arrangement?

A) 6
B) 4
C) 2
D) 3

48. If AB II CD, ∠APQ = 50° and ∠PRD = 130°, then ∠QPR is

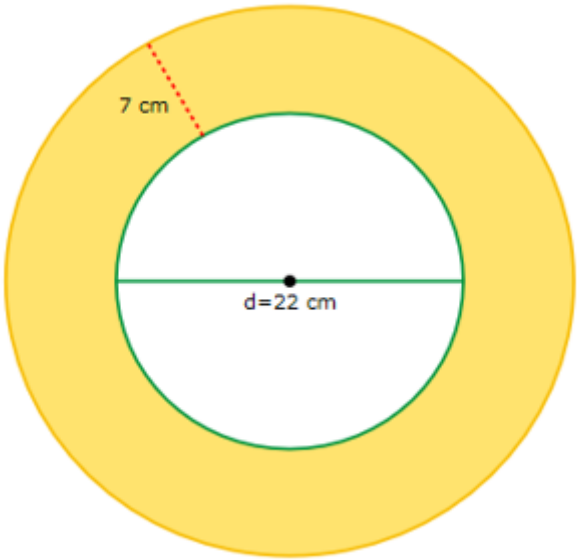


A) 130° B) 50° C) 80° D) 30°

49. These numbers are taken from the number of people that attended a particular church every Friday for 7 weeks: 62, 18, 39, 13, 16, 37, 25. Find the mean.

A) 25 B) 62 C) 210 D) 30

50. Both circles have the same centre. What is the area of the shaded region?



Use 3.14 for π. Write your answer as a whole number or a decimal rounded to the nearest hundredth.

A) 637.42 B) 573.24 C) 673.24 D) none of these