C M O

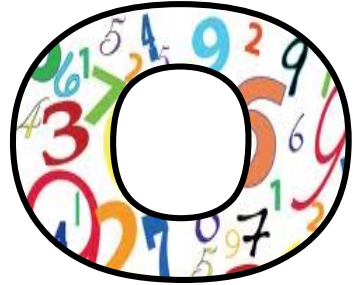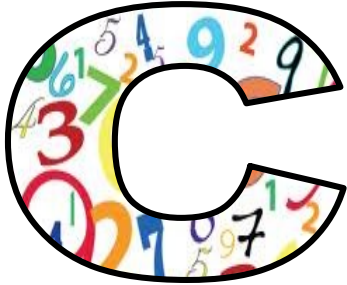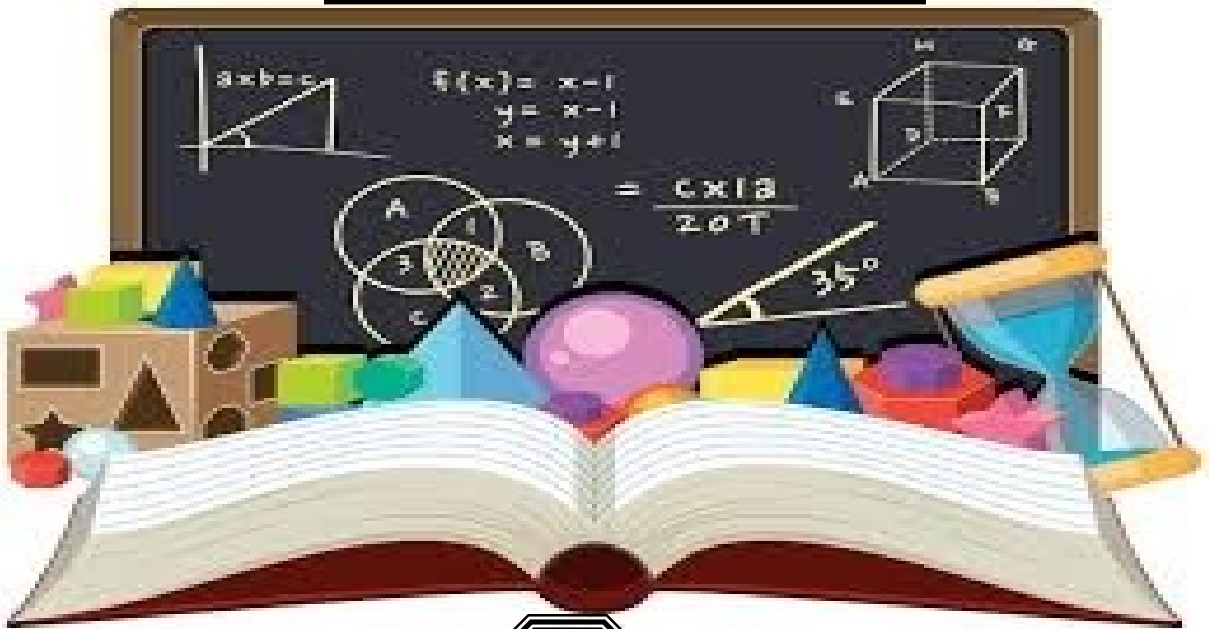## CHINMAYA   MATHEMATICS   OLYMPIAD

SAMPLE PAPER

8

Please fill the following details immediately

Name: _____

Hall Ticket No.:_____

❖ **50 Questions** ❖

❖ **Time Allowed : 120 Minutes** ❖

❖ **Do not open this question paper until the signal is given.**

❖ **Please check the CLASS printed on the cover page and the inside is same when you open the booklet.**

General Instructions:

1) All questions are compulsory and carry equal marks.

2) There is no negative marking.

3) There is only one correct answer hence write one choice only.

4) Please avoid cutting/ overwriting etc.

5) Return the paper to the invigilator at the end of the examination.

6) Write the correct option in the given box.

1) Tell the number of triangles in the following figures

    a] 20   b] 25

    c] 18   d] 15
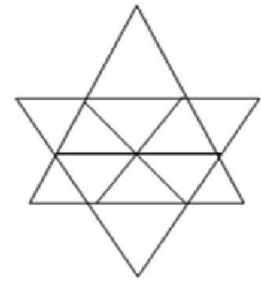
2) 200 kg of sugar was purchased at the rate of Rs. 15 per kg and sold at a profit of 5%. Compute the selling price per kg.
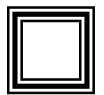
    a]Rs. 18.25   b] Rs. 13.85   c] Rs.15.75 d] Rs. 31.50
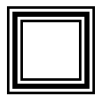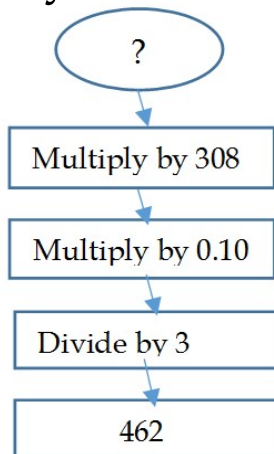
3) Which property is used in the equation given below?

    $12 (x + 4) = 12x + 48$

    a] Associative property of addition

    b] Commutative property of Addition

    c] Distributive property of addition

    d] Reflexive property of addition

4) What is the number you started with?

    a] 5

    b] 45

    c] 56

    d] 25

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        ( ? )
          |
          v
  Multiply by 308
          |
          v
  Multiply by 0.10
          |
          v
    Divide by 3
          |
          v
        462
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ROUGH WORK

5) Rohit is 40 m South-West of Aarav. Then Ansh is 40 m South-East of Aarav. Then Ansh is in which direction of Rohit?
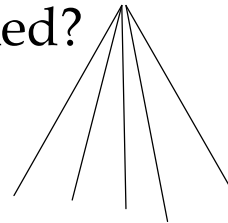a] East   b] West   c] North-East   d] South

6) Mohit is thinking of two numbers. Their greatest common factor is 6. Their least common multiple is 36. One of the numbers is 12. What is the other number?
a] 18   b] 16   c] 6   d] 24

7) An acute angle is an angle whose measure is between 0^0 and 90^0. Using the rays in diagram, how many different acute angles can be formed?
a] 12   b] 9
c] 15   d] 10

8) A cylinder and a cone have the same height and the same radius of the base. The ratio between the volumes of the cylinder and the cone is
a] 1 : 3   b] 3 : 1   c] 1 : 2   d] 2 : 1

9) A man working 8 hours a day takes 5 days to complete a project. How many hours a day must he work to complete it in 4 days?
a] 10 hours   b] 11 hours   c] 13 hours d] 9 hours

ROUGH WORK

10) Semicircular lawns are attached to the edges of a rectangular field measuring 42 m x 35 m. The area to the total field is

a] 3818.5 m²   b] 8318 m²   c] 5813 m²   d] 1358 m²

11) How many ml of water must be added to 48 ml of alcohol to make a solution that contains 25% alcohol?

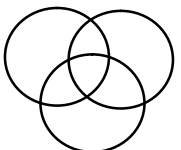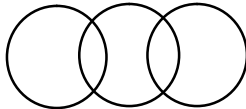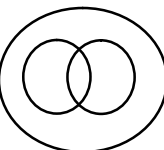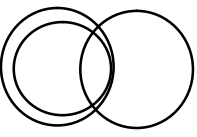a] 48 ml   b] 64 ml   c] 144 ml   d] 192 ml

12) The number of times in a day the hour hand and the minute-hand of a clock are at right angles is

a] 44   b] 48   c] 24   d] 12

13) Which one of the following diagrams correctly represents the relationship among tennis fans, cricket players and students?

a]   b]   c]   d]

14) A contest began at noon one day and ended 1000 minutes later. At what time did the contest end?

a] 10:00 p.m.   b] Midnight

c] 2.30 p.m.   d] 4.40 a.m.

ROUGH WORK

15) Beena used a calculator to find the product 0.075 x 2.56. She forgot to enter the decimal points. The calculator showed 19200. If Beena has entered points correctly, the answer would have been

a] 0.0192   b] 0.192   c] 1.92   d] 19.2

16) What is the value of x if -3x + 2 = -7

a] x = -6   b] x = -3   c] x = 3   d] x = 6

17) Which of the following equations illustrates the inverse property of multiplication?

a] 5 x 1/5 = 1   b] 5 x 1 = 5

c] 5 x 0 = 0   d] 5 x 5 = 25

18) A right triangle's hypotenuse has length 5 units. If one leg has length 2 units, what is the length of the other leg?

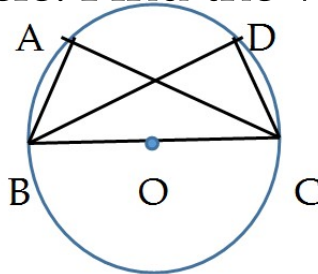a] 3   b] $\sqrt{21}$ c] $\sqrt{29}$ d] 7

19) The sum of a number (n) and 14 is 72. Which equation shows this relationship?

a] 14 + n = 72   b] 72n = 14

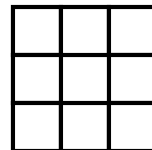c] 14 – n = 72   d] 72 + n = 14

20) O is the centre of the circle. Find the value of x?

a] 45
b] 90
c] 60
d] 30

ROUGH WORK

21) The maximum number of squares in the following figure is

a] 14   b] 13   c] 10   d] 9

22) Farmer Ramu put a square fence around his vegetable garden to keep the deer from eating his corn. One side was 10 m in length. If the posts were places 2m apart, how many posts did he use?

a] 16   b] 20   c] 10   d] 15

23) What is the value of $x^3 + y^3 + z^3 - 3xyz$, when $x = 2, y = 1$ and $z = -3$?
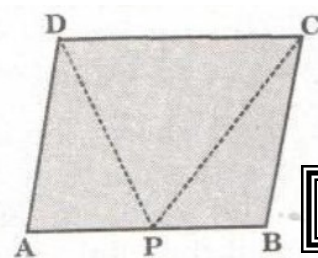
a] 6   b] 0   c] 2   d] -4

24) A geometrical shape with no vertices and no flat surfaces is

a] cone   b] sphere   c] cylinder   d] hemisphere

25) ABCD is a parallelogram as shown in figure. If AB = 2AD and P is mid-point of AB, then $\angle CPD$ is equal to:

a] 90°   b] 60°

c] 45°   d] 135°

26) Find the smallest number of five digits exactly divisible by 16, 24, 36 and 54.

a] 10244   b] 10296   c] 10368   d] 10291

27) Calculate the value of $(-0.4)^3$.

a] 0.640   b] 0.064   c] -0.064   d] -0.640

ROUGH WORK

28) Multiply x by 3 and then subtract 3 from it. If the result is 9, what is the value of x ?

a]3   b]4   c]5   d]6

29) If a cartoon containing a dozen mirrors is dropped, which of the following cannot be the ratio of broken mirrors to unbroken mirrors?

a] 2:1   b]3:1   c]3:2   d]7:5

30) 0.01 is what percent of 0.1?

a] $\dfrac{1}{100}$ b] $\dfrac{1}{10}$ c]10   d]100

31) The compound interest on a sum of money for three years at 5% is Rs. 1324.05.   What is the simple interest?

a]Rs.1260   b]Rs.1560   c]Rs.1160   d]Rs.1360

32)$(a + 2b)^2 =$ _____ .

a]$a^2+2ab+b^2$ b]$a^2+4ab+4b^2$
c]$a^2+2ab+4b^2$ d]$a^2+2ab+2b^2$

33) The length of a rectangle is (p+3) cm and its breadth is (2p – 5] cm. If its perimeter is 26 cm, find the area of the rectangle in cm².

a] 13   b] 40   c] 48   d] 56

ROUGH WORK

34) The value of p + q + r is equal to:
   a] 1 right angle
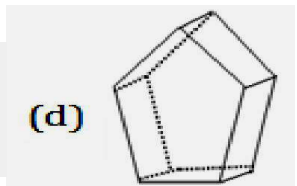   b] 2 right angles
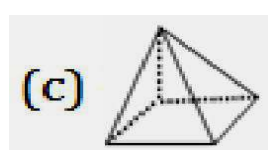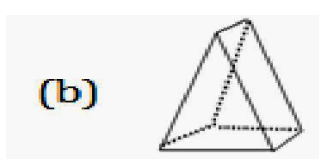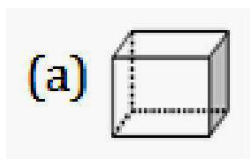   c] 3 right angles
   d] 4 right angles
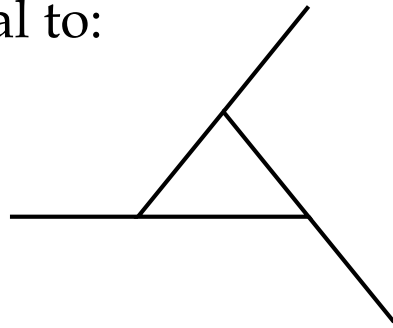
35) Δ ABC is right angled at B. The circumcenter is:
   a] mid-point of AB   b] mid-point of BC
   c] mid-point of AC   d] B

36) Which 3-dimensional figure has 7 faces, 15 edges and 10 vertices?

(a)   (b)   (c)   (d)

37) What is the average of the sixth even number, fifth and eighth odd number after 200?
   a] 210   b] 211   c] 212   d] 213

38) When a number is divided by 125, the remainder is 82, when the same number is divided By 25, the remainder will be
   a] 8   b] 9   c] 6   d] 7

ROUGH WORK

39) Between which two consecutive whole numbers $\sqrt{2000}$ lies ?

   a] 41 and 42   b] 44 and 45

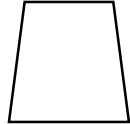   c] 43 and 44   d] 45 and 46
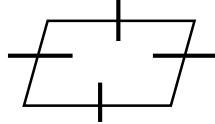
40) Which two quadrilaterals have exactly four lines of symmetry ?
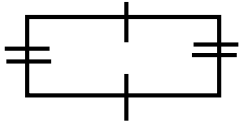
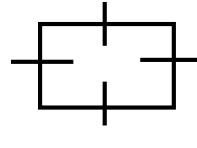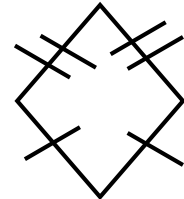   (1)   (2)   (3)   (4)   (5)
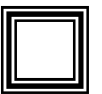
   a](1) and (5)   b] (3) and (2)

   c] (3) and(4)   d] (2) and (5)
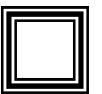
41) Factories : $3 - 12\ (\ a\ -\ b\ ]^2$

   a] 3(1 + 2a + 2b) (1 – 2a +2b)

   b] 3(1 - 2a - 2b) (1 + 2a - 2b)

   c] 3(1 + 2a - 2b) (1 – 2a +2b)

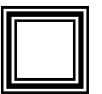   d] 3(1 - 2a - 2b) (1 - 2a - 2b)

42)Trader marks his goods 40% above the cost price and gives a discount of 20% on the marked price. Find his gain percent.
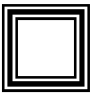
   a] 10%   b] 12%   c] 14%   d] 15%
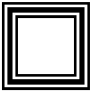
ROUGH WORK

43) Addition of rational numbers does not satisfy which of the following property ?

a] Commutative   b] Associative

c] Closure   d] None of these

44) In the word **Mathematics**, the ratio of number of consonants to the number of vowels is

a] 4:7   b] 7: 4   c] 5:6   d] 6:5

45) Dhruv plans on leaving his home in Delhi at 8.00 AM. He will drive at an average speed of 40 km per hour and plans to arrive at his destination just before 12.00 PM. If he makes no stops along the way, which of the four places is his destination ?

Delhi   120 km   x

160 km   130 km

W   240 km   y

z
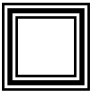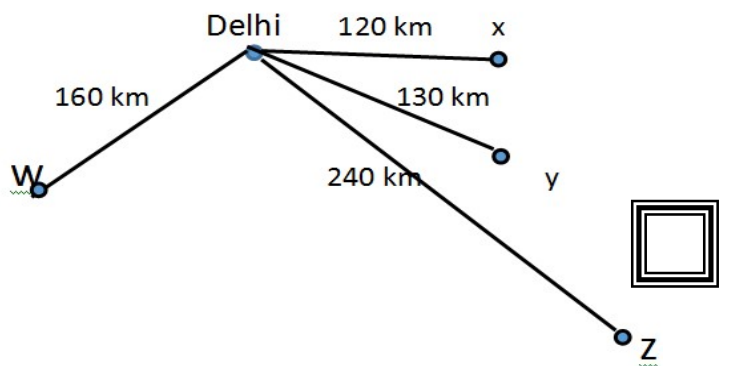
a] w   b] x

c] y   d] z

46) A man sold 10 eggs for Rs.5 and gain 20%. How may eggs did he buy for Rs.5?
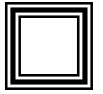
a] 12   b] 25/12   c]25   d] 10
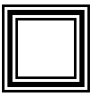
ROUGH WORK

47)Jiah is building bird houses. It takes her 5 ½ hours to build four bird houses. Which of following is an equivalent rate ?

  a]14 hours to build 18 bird houses

  b] 28 hours to build 35 bird houses

 c] 11 hours to build 8 bird houses

  d] 22 hours to build 28 bird houses

48)Kareena is on the fifth floor of a building. Her car is in the parking garage which is three levels below the ground floor. She gets in the elevator and travels from the fifth floor above ground level to the third floor below ground level. How many floors did she travel?
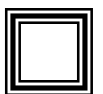
  a] 7   b] 6   c] 4   d] 8
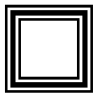
49)Two flower beds in a park are similar rectangles of the same width. The longest side of the large flower bed is 48 cm long, and the longest side of the small flower bed is 16 cm. If L is the area of the large flower bed and S is the area of small flower bed, which equation is true?

  a] S = L-16   b] S = L+16   c] $S = \dfrac{1}{9}L$ d] $S = \dfrac{1}{3}L$
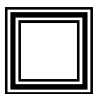
50) In the series 6 4 1 2 2 8 7 4 2 1 5 3 8 6 2 1 7 1 4 1 3 2 8, how many pairs of successive numbers have a difference of 1 each?

  a] Four   b] Five   c] Six   d] Seven

ROUGH WORK