

PRE BOARD II (Session: 2017-18)

CLASS – VIII

MATHEMATICS

M.M.:100

SECTION A

(1x4=4)

1. ABCD is a rectangle whose diagonals meet at O. Find the value of x if $OA=2x+4$ units and $OD=3x+1$ units.
2. Write the order of rotational symmetry of a square.
3. Simplify: $\frac{p^4 - 1}{p^2 - 1}$.
4. Find the product using suitable identity: $(y-7)(y+7)$.

SECTION-B

(2x7=14)

5. Find the value of $\sqrt{176} + \sqrt{2401}$.
6. Evaluate: $10 \div 8^{\frac{-1}{3}}$.
7. A certain sum amounts to Rs.12167 in 3 years at 15% p.a. compounded annually. Find the sum.
8. A bag contains 3 red and 2 blue marbles. A marble is drawn at random. What is the probability of drawing a blue marble?
9. Write the order and angle of rotational symmetry of an equilateral triangle.
10. Verify Euler's Formula for a Cube.
11. Using factor method, divide: $x^2-7x-18$ by $x-9$.

SECTION C

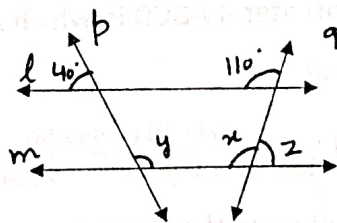
(3X10=30)

12. Find the smallest number by which 3645 must be divided so that it becomes a perfect square.

13. Find the value of x, if

$$2^x + 2^x + 2^x = 192$$

14. In the given figure, $l \parallel m$. Find $\angle x$, $\angle y$ and $\angle z$.



(1).

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15. Find the C.I. on Rs.1000 for 18 months at 10% p.a. compounded half yearly.
16. The diameter of a road roller 120cm long is 84cm. If it takes 500 complete revolutions to level a playground. Determine the cost of leveling it at the rate of 30 paise per square metre.
17. One side of a //gm is $\frac{3}{4}$ times its adjacent side. If the perimeter of the //gm is 70cm, find the sides of the //gm.

18. A family has monthly income of Rs.10000. The money is spent under different heads which is represented by the following Pie-chart.

(A) Find money spent by the family on food.

(B) Find the difference in expenditure on rent and clothes.



19. Simplify: $\sqrt{49} + \sqrt{0.49} + \sqrt{0.0049}$.

20. Draw a line segment AB=4.5cm and divide it internally in the ratio 1:3.

21. If $x+y=12$ and $xy=14$, find the value of x^2+y^2 .

SECTION-D

(4X13=52)

22. If $x - \frac{1}{x} = 7$, find the value of $x^4 + \frac{1}{x^4}$.

23. A card is drawn at random from a pack of 52 cards. Find the probability that the card drawn is:

- (i) A red card
- (ii) Neither a red card nor a queen
- (iii) Other than an ace
- (iv) 10 of black suit

24. Construct a quadrilateral ABCD in which AB=4cm, BC=5cm, CD=4.5cm, AD=5.5cm and diagonal AC=7.5cm.

25. Find the value of $\frac{104 \times 104 - 96 \times 96}{104 \times 104 + 96 \times 96 - 2 \times 104 \times 96}$.

26. The difference between the compound interest and simple interest on a certain sum for 2 years at 7.5% per annum is Rs.360. Find the sum.

27. Surbhi has Rs.112 as one rupee and five rupee coins. If the number of one rupee coins is thrice the number of five rupee coins, then how many coins of each denominations does she have?

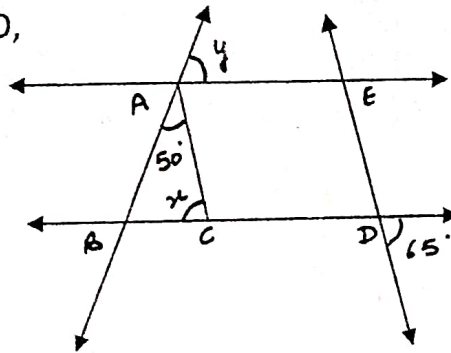
28. The ones digit of a 2-digit number is twice the tens digit. When the number formed by reversing the digits is added to the original number, the sum is 99. Find the original number.

29. ABCD is a quadrilateral in which all four sides are equal. Show that both pairs of opposite sides are parallel.

30. If $5^{x+1} - 5^x = 500$, then find the value of $\frac{4}{3}x + 1$.

31. In the given figure, $AE \parallel BD$ and $AC \parallel ED$,

a. find $\angle x$ and $\angle y$. Is $AB = AC$?



32. The dimensions of an oil tin are 26cm x 26cm x 45cm. Find the area of tin sheet required to make 20 such tins.

33. Construct a quadrilateral ABCD in which $AB = 4.5\text{cm}$, $BC = 5\text{cm}$, $\angle A = 60^\circ$, $\angle B = 120^\circ$ and $\angle C = 60^\circ$.

34. What must be subtracted from $8x^4 + 14x^3 - 2x^2 + 7x - 8$ so that the resulting polynomial is exactly divisible by $4x^2 + 3x - 2$.