D.A.V. PUBLIC SCHOOL, THANE
SESSION: 2022 – 2023
PERIODIC TEST – II (HALF YEARLY EXAMINATION)
SUBJECT: MATHEMATICS

STD: VIII **Max Marks: 80**
Date: 14/09/2022 **Time: 3 Hrs**

General Instructions:

1. This question paper contains two parts A and B.

Part – A:

- It consists of two sections- I and II
- Section I: Question No. 1 to 10 are Objective type questions/Very Short answer type questions of 1 mark each. Internal choice is provided in 3 questions.
- Section II: Question No. 11 to 12 are Case Study Based Questions. Each case study has 5 case based sub-parts. An examinee is to attempt any 4 out of 5 sub-parts.

Part – B:

- Section III: Question No 13 to 21 are Short Answer Type - I questions of 2 marks each.
- Section IV: Question No 22 to 29 are Short Answer Type - II questions of 3 marks each.
- Section V: Question No 29 to 33 are Long Answer Type questions of 5 marks each.

2. Part A and B have internal choices.
3. Internal choice is provided in 3 questions of 2 marks, 2 questions of 3 marks and 1 question of 5 marks.
4. Please write the serial no. of the question as per question paper before attempting the question.
5. In question of Constructions/Graphs, the drawing should be neat, clean and exactly as per given measurements. Use ruler and compass only.

PART - A
Section-I
(Section I has 10 questions of 1 mark each. Internal choice is provided in 3 questions.)

Q1. If $\sqrt{5625} = 75$, then find the value of $\sqrt{56.25} + \sqrt{0.5625}$

(OR)

Find the number of non-square numbers between 27^2 *and* 28^2.

Q2. Find the cube of $\frac{-15}{7}$

Q3. Find the value of x *if* $y = 15$ and constant of variation is $\frac{2}{3}$, when x *and* y vary directly.

(OR)

If x *and* y vary inversely, find the value of 'k'(constant of variation) when $x = \frac{5}{7}$ *and* $y = 21$

Q4. For an article whose selling price is ₹ 4200, a customer paid ₹ 5376 including GST. Find the rate of GST charged on the article.

Q5. Find the marked price of an article whose selling price is ₹ 1920 if discount of 4% is given.

Q6. Evaluate $(65)^2 - (35)^2$ using suitable identity.

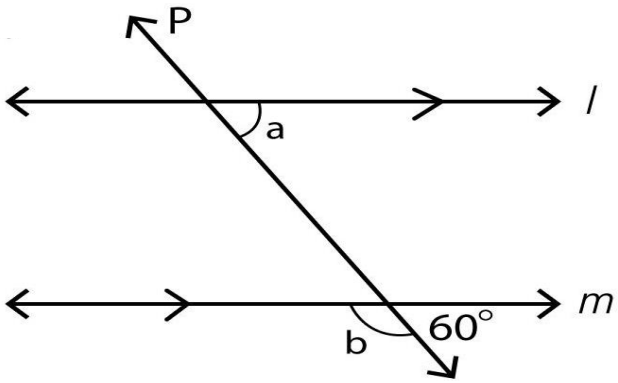
Q7. Find the product of $\left[a + \frac{1}{5}\right]\left[a + \frac{3}{5}\right]$ using suitable identity.

(OR)

Expand $[\boldsymbol{p^2 - 8}]^{\boldsymbol{2}}$using suitable identity.

Q8. In the given figure, $l \parallel m$, 'p' is the transversal

Find the measure of $\angle a$ *and* $\angle b$.



Q9. Find the distance of a point P (5, 4) from x – axis.

Q10. In the word 'DAUGHTER' which letter shows rotational symmetry of order 2?

Section-II

(Case study-based questions are compulsory. Attempt any four sub-parts of each question. Each sub-part carries 1 mark.)

Case study based – 1 (Read the source/text given below and answer any four questions)

Q11. Rama and Riti run a readymade garments shop. They mark the garments at such a price that even after allowing a discount of 12.5%, they make a profit of 10%. The cost price of a suit is ₹ 2940.

(i) What is the profit earned on a suit?

a) ₹ 234 b) ₹ 260 c) ₹ 294 d) ₹ 320

(ii) Find the selling price of each suit.

a) ₹ 3234 b) ₹ 4984 c) ₹ 5564 d) ₹ 4126

(iii) What is the amount of discount offered on each suit?

a) ₹ 406 b) ₹ 462 c) ₹ 495 d) ₹ 472

(iv) Find the marked price of each suit?

a) ₹ 3696 b) ₹ 3358 c) ₹ 3487 d) ₹ 3284

(v) Find the selling price of each suit if the new profit% is 20%.

a) ₹ 5240 b) ₹ 5180 c) ₹ 4638 d) ₹ 3528

Case study based – 2 (Read the source/text given below and answer any four questions)

Q12. Class VIII students of a secondary school were allotted a plot of land for gardening activity. There is a rectangular grassy lawn in the plot as shown in the figure. Students are to sow seeds of flowering plants in the rectangular lawn and make a fence around it. Study the graph and answer the following questions.

(i) What are the co-ordinates of vertex D?

a) (6, 2) b) (1, 6)

c) (2, 6) d) (6, 6)

(ii) What is the abscissa at vertex B?

a) 0 b) 1

c) 5 d) 2

(iii) Find the perimeter of the fence made around the lawn.

a) 16 units b) 18 units

c) 12 units d) 20 units

iv) What is the cost of fencing the lawn, if the rate is ₹ 50 per unit?

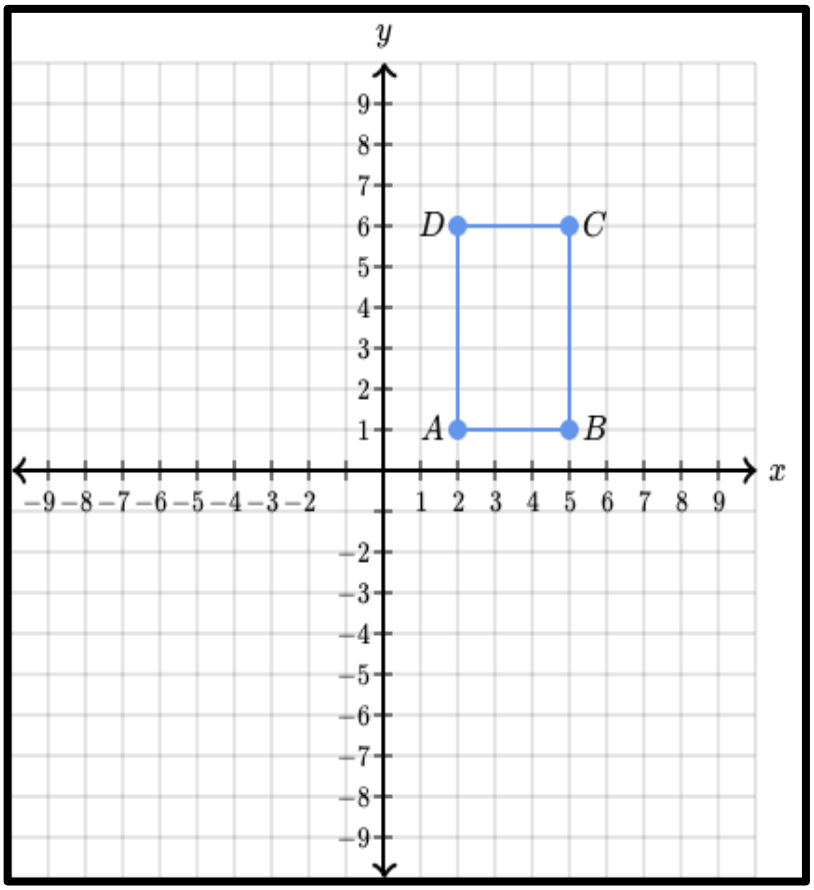
a) ₹ 825 b) ₹ 800

c) ₹ 1075 d) ₹ 675

v) What is the area of the rectangular lawn?

a) 10 sq. units b) 14 sq. units

c) 15 sq. units d) 16 sq. units



PART - B

Section-III (2 marks each)

(All questions are compulsory. In case of internal choices, attempt anyone.)

Q13. Verify whether (8, 9, 12) is a Pythagorean triplet or not?

Q14. Evaluate $\sqrt[3]{(-216) \times (-3375)}$

(OR)

Find the cube root of 21952 by estimation method.

Q15. Anil can cover a distance of 5 km in 20 minutes. Find the distance covered by him in 50 minutes.

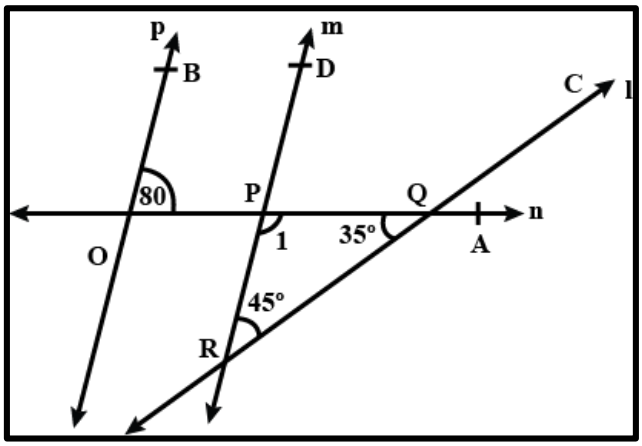
Q16. A man sold 250 chairs and had a gain equal to selling price of 50 chairs. Find his profit percent.

(OR)

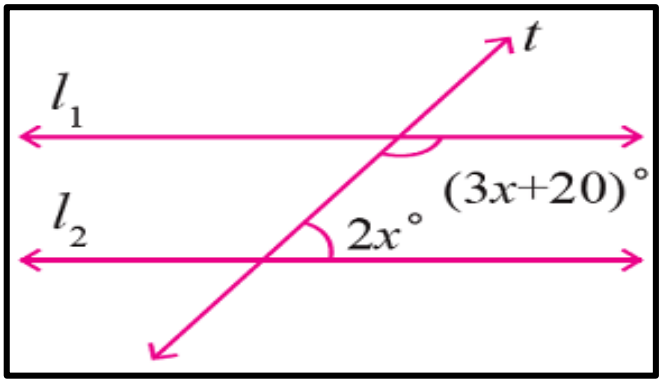
Raman purchased a watch for ₹ 864. This amount includes 8% GST, find the price of the watch before GST was included.

Q17. Factorize $121a^2 + 154ab + 49b^2$ using suitable identity.

Q18. With the help of the measurements of the angles in the given figure, prove that line $\boldsymbol{p} \parallel \boldsymbol{m}$

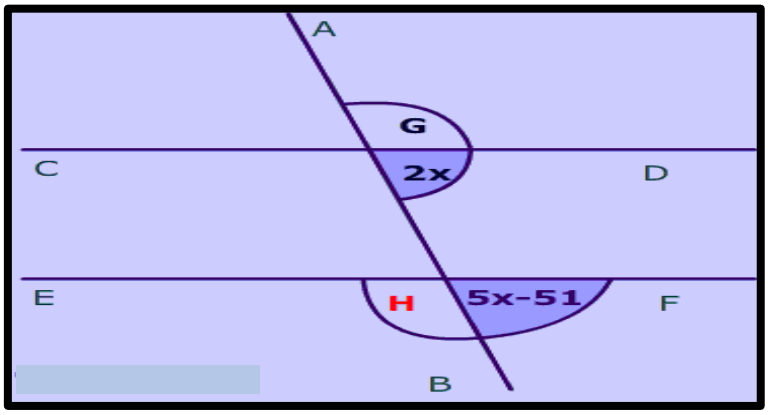


Q19. In the given figure, $\boldsymbol{l_1} \parallel \boldsymbol{l_2}$, Find the value of 'x'and measure of both the angles.



(OR)

In the adjacent figure, $\boldsymbol{CD} \parallel \boldsymbol{EF}$. Find the value of 'x' and measure of both the angles.



Q20. Plot the points A (0, 1) B (2, 3) and C (4, 5). Join the points, do they lie on a line?

Q21. Write the order of rotation and angle of rotation for a regular hexagon.

Part –B

Section-IV (3 marks each)

(All questions are compulsory. In case of internal choices, attempt anyone.)

Q22. There are 500 children in a school. For a PT drill they have to stand in such a way that number of rows is equal to number of columns. Find the number of students in each row and how many students are left out of the arrangement?

Q23. What is the smallest number by which 864 must be multiplied so that the product is a perfect cube? Also find the cube root of the number so obtained.

Q24. How much time will a train of length 210 m take to clear a platform of length 165 m, if its speed is 50 km/hr.?

(OR)

If 14 pumps of equal capacity can fill a tank in 6 days. Find the number of extra pumps required to fill the tank in 4 days.

Q25. The cost price of a pair of shoes is ₹ 1200. The shopkeeper had a gain of 12% after allowing a discount of 16%. Find the marked price of the shoes.

Q26. Factorize $\mathbf{25}a^2 + \mathbf{9}b^2 + \mathbf{16}c^2 - \mathbf{30}ab + \mathbf{24}bc - \mathbf{40}ac$, using suitable identity.

(OR)

If $a + b + c = 12$, and $a^2 + b^2 + c^2 = 66$, find the value of $ab + bc + ca$

Q27. Draw a line segment AB of length 6.4 cm, divide it internally such that ratio of AC **:** CB is 3**:**5. Measure the parts AC and CB.

Q28. An electronic shop records the number of T.V's sold over the course of a week. The number of T.V's sold each day is shown in the table below. Represent the data in a line graph.

Days	Monday	Tuesday	Wednesday	Thursday	Friday
T.V's sold	6	4	8	3	7

Q29. Show the rotational symmetry of an equilateral triangle with the help of a rough sketch. Mention its order of rotation and angle of rotation.

Part –B

Section-V (5 marks each)

(All questions are compulsory. In case of internal choices, attempt anyone.)

Q30. The area of a square field is 60025 m^2. A man cycles along its boundary at 18 Km/hr. In how much time will he return at the starting point?

(OR)

The area of a square field is 7056 m^2. A rectangular field whose length is twice its breadth, has its perimeter equal to the perimeter of the square field. Find the area of the rectangular field.

Q31. Find the smallest number by which 16384 be divided so that the quotient may be a perfect cube. Also find the cube root of the number so obtained.

Q32. a) A school has 8 periods a day each of 45 minutes duration. How long would each period be, if the school has 9 periods a day, assuming the number of school hours to be the same?

b) If 2 m of a uniform iron rod weights 42 kg, what will be the weight of 6 m of the same rod?

Q33. If $x^2 + \frac{1}{x^2} = 27$, find the value of :

(i) $x + \frac{1}{x}$

(ii) $x - \frac{1}{x}$

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