SAMPLE CONTENT

PART - II

MATHEMATICS WORKBOOK

BASED ON TEXTBOOK AND BOARD PAPER PATTERN

STD. IX

(Eng. Med.)

Target Publications® Pvt. Ltd.

Based on the latest syllabus prescribed by the Maharashtra State Board of Secondary and Higher Secondary Education, Pune - 04

Mathematics Part – II

WORKBOOK

STD. IX (English Medium)

Sample Content

Salient Features

- ⇨ Includes all textual Problem Sets
- ⇨ Covers all Intext and Activity/Project based questions from the textbook
- ⇨ Includes adequate space to write the answers
- ⇨ Tentative marks allocation for all problems
- ⇨ Includes Important Theorems and Formulae at the end of the book

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PREFACE

Taget's **"Mathematics Part - II Workbook: Std. IX"** is an excellent resource for students seeking to enhance their preparation for examinations.

Our basic premise for this book is to retain the outline of the content as texbook to facilitate students to keep their practice material together and have a single point of reference for revision.

The book includes formula section at the end as quick revision tool for the solving problems.

Tentative marks have also been allocated to the questions. However, marks mentioned are indicative and are subject to change as per Maharashtra state board's discretion.

A book affects eternity; one can never tell where its influence stops.

Best of luck to all the aspirants!

Publisher
Edition: First

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This reference book is transformative work based on 'Mathematics Part - II; Reprint: 2022' published by the Maharashtra State Bureau of Textbook Production and Curriculum Research, Pune. We the publishers are making this reference book which constitutes as fair use of textual contents which are transformed by adding and elaborating, with a view to simplify the same to enable the students to understand, memorize and reproduce the same in examinations.

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Sample Content

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1 Basic Concepts in Geometry

Let's Learn

 # Activity:

1. Points A, B, C are given below. Check, with a stretched thread, whether the three points are collinear or not. If they are collinear, write which one of them is between the other two.

A B C (Textbook pg. no. 4)

Ans:

2. Given below are four points P, Q, R, and S. Check which three of them are collinear and which three are non collinear. In the case of three collinear points, state which of them is between the other two.

Q S R P (Textbook pg. no. 4)

Ans:

3. Students are asked to stand in a line for mass drill. How will you check whether the students standing are in a line or not ? (Textbook pg. no. 4)

Ans:

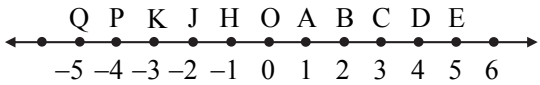
4. How had you verified that light rays travel in a straight line? Recall an experiment in science which you have done in a previous standard. (Textbook pg. no. 4)

Ans:

Sample Content

Practice Set 1.1

1. Find the distances with the help of the number line given below. **[1 Mark each]**



i. d(B, E)

***Solution*:**

ii. d(J, A)

***Solution*:**

iii. d(P, C)

***Solution*:**

iv. d(J, H)

***Solution*:**

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Page no. **3** to **9** are purposely left blank.

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Practice Set 1.2

1. The following table shows points on a number line and their co-ordinates. Decide whether the pair of segments given below the table are congruent or not. [3 Marks each]

Point	A	B	C	D	E
Co-ordinate	–3	5	2	–7	9

i. seg DE and seg AB

***Solution*:**

ii. seg BC and seg AD

***Solution*:**

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iii. seg BE and seg AD

***Solution*:**

2. Point M is the midpoint of seg AB. If AB = 8, then find the length of AM. [2 Marks]

***Solution*:**

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3. Point P is the midpoint of seg CD. If CP = 2.5, find *l*(CD). **[2 Marks]**

***Solution*:**

4. If AB = 5 cm, BP = 2 cm and AP = 3.4 cm, compare the segments. **[2 Marks]**

***Solution*:**

5. Write the answers to the following questions with reference to the figure given below: **[1 Mark each]**

i. Write the name of the opposite ray of ray RP

Ans:

ii. Write the intersection set of ray PQ and ray RP.

Ans:

iii. Write the union set of ray PQ and ray QR.

Ans:

iv. State the rays of which seg QR is a subset.

Ans:

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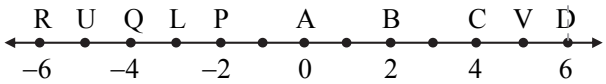
v. Write the pair of opposite rays with common end point R.
Ans:

vi. Write any two rays with common end point S.
Ans:

vii. Write the intersection set of ray SP and ray ST.
Ans:

6. Answer the questions with the help of figure given below.



i. State the points which are equidistant from point B. **[2 Marks]**
Ans:

ii. Write a pair of points equidistant from point Q. **[2 Marks]**
Ans:

iii. Find d(U,V), d(P,C), d(V,B), d(U, L). **[2 Marks for each distance]**
Ans:

Sample Content

Practice Set 1.3

1. Write the following statements in 'if-then' form. **[1 Mark each]**

i. The opposite angles of a parallelogram are congruent.

Ans:

ii. The diagonals of a rectangle are congruent.

Ans:

iii. In an isosceles triangle, the segment joining the vertex and the midpoint of the base is perpendicular to the base.

Ans:

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2. Write converses of the following statements. **[1 Mark each]**

i. The alternate angles formed by two parallel lines and their transversal are congruent.

Ans:

ii. If a pair of the interior angles made by a transversal of two lines are supplementary, then the lines are parallel.

Ans:

iii. The diagonals of a rectangle are congruent.

Ans:

Problem Set – 1

1. Select the correct alternative answer for the questions given below. **[1 Mark each]**

i. How many midpoints does a segment have?

(A) only one (B) two (C) three (D) many

Ans: ☐

ii. How many points are there in the intersection of two distinct lines?

(A) infinite (B) two (C) one (D) not a single

Ans: ☐

iii. How many lines are determined by three distinct points?

(A) two (B) three (C) one or three (D) six

Ans: ☐

iv. Find d(A, B), if co-ordinates of A and B are – 2 and 5 respectively.

(A) –2 (B) 5 (C) 7 (D) 3

Ans: ☐

v. If P – Q – R and d(P, Q) = 2, d(P, R) = 10, then find d(Q, R).

(A) 12 (B) 8 (C) $\sqrt{96}$ (D) 20

Ans: ☐

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2. On a number line, co-ordinates of P, Q, R are 3, – 5 and 6 respectively. State with reason whether the following statements are true or false. [2 Marks each]

i. d(P, Q) + d(Q, R) = d(P, R)

***Solution*:**

ii. d(P, R) + d(R, Q) = d(P, Q)

***Solution*:**

Sample Content

iii. d(R, P) + d(P, Q) = d(R, Q)

***Solution*:**

iv. d(P, Q) – d(P, R) = d(Q, R)

***Solution*:**

3. Co-ordinates of some pairs of points are given below. Hence find the distance between each pair.

[1 Mark each]

i. 3, 6

***Solution*:**

ii. –9, –1

***Solution*:**

Sample Content

iii. $-4, 5$

***Solution*:**

iv. $0, -2$

***Solution*:**

v. $x + 3, x - 3$

***Solution*:**

vi. $-25, -47$

***Solution*:**

Sample Content

vii. 80, –85

***Solution*:**

4. Co-ordinate of point P on a number line is – 7. Find the co-ordinates of points on the number line which are at a distance of 8 units from point P. [3 Marks]

***Solution*:**

Sample Content

5. Answer the following questions. **[1 Mark each]**

i. If A – B – C and d(A, C) = 17, d(B, C) = 6.5, then d (A, B) = ?

***Solution*:**

ii. If P – Q – R and d(P, Q) = 3.4, d(Q, R) = 5.7, then d(P, R) = ?

***Solution*:**

6. Co-ordinate of point A on a number line is 1. What are the co-ordinates of points on the number line which are at a distance of 7 units from A ? **[3 Marks]**

***Solution*:**

Sample Content

7. Write the following statements in conditional form. **[1 Mark each]**

i. Every rhombus is a square.

Ans:

ii. Angles in a linear pair are supplementary.

Ans:

iii. A triangle is a figure formed by three segments.

Ans:

iv. A number having only two divisors is called a prime number.

Ans:

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8. Write the converse of each of the following statements. **[1 Mark each]**

i. If the sum of measures of angles in a figure is 180°, then the figure is a triangle.

Ans:

ii. If the sum of measures of two angles is 90°, then they are complement of each other.

Ans:

iii. If the corresponding angles formed by a transversal of two lines are congruent, then the two lines are parallel.

Ans:

iv. If the sum of the digits of a number is divisible by 3, then the number is divisible by 3.

Ans:

9. Write the antecedent (given part) and the consequent (part to be proved) in the following statements. **[2 Marks each]**

i. If all sides of a triangle are congruent, then its all angles are congruent.

Ans:

ii. The diagonals of a parallelogram bisect each other.

Ans:

Sample Content

10. Draw a labelled figure showing information in each of the following statements and write the antecedent and the consequent. [3 Marks each]

i. Two equilateral triangles are similar.

Ans:

ii. If angles in a linear pair are congruent, then each of them is a right angle.

Ans:

iii. If the altitudes drawn on two sides of a triangle are congruent, then these two sides are congruent.

Ans:

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Teacher's Remark: ..... **Date:** .....

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