

Maharashtra Board Solutions Class 8-Maths (Practice Set 2.2): Chapter 2- Parallel Lines and Transversals



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Maharashtra Board Solutions Class 8-Maths (Practice Set 2.2): Chapter 2- Parallel Lines and Transversals

Class 8: Maths Chapter 2 solutions. Complete Class 8 Maths Chapter 2 Notes.

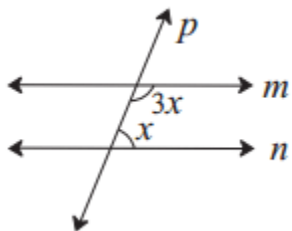
Maharashtra Board Solutions Class 8-Maths (Practice Set 2.2): Chapter 2- Parallel Lines and Transversals

Maharashtra Board 8th Maths Chapter 2, Class 8 Maths Chapter 2 solutions

Question 1.

Choose the correct alternative.

i. In the given figure, if line $m \parallel$ line n and line p is a transversal, then find x .



(A) 135°

(B) 90°

(C) 45°

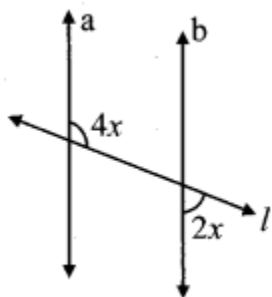
(D) 40°

Solution:

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(C) 45°

Hint:



line $m \parallel$ line n and line p is a transversal.

$$\therefore m\angle BFG + m\angle FGD = 180^\circ$$

...[Interior angles]

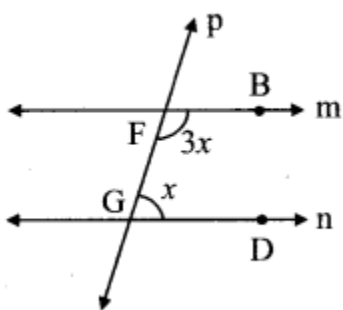
$$\therefore 3x + x = 180^\circ$$

$$\therefore 4x = 180^\circ$$

$$\therefore x = 180/4$$

$$\therefore x = 45^\circ$$

ii. In the given figure, if line $a \parallel$ line b and line l is a transversal, then find x .



(A) 90°

(B) 60°

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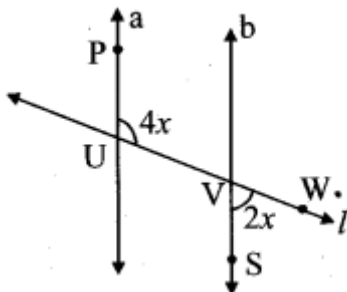
(C) 45°

(D) 30°

Solution:

(D) 30°

Hint:



line $a \parallel$ line b and line l is a transversal.

$$\therefore m\angle UVS = m\angle PUV$$

...[Alternate angles]

$$= 4x$$

$$m\angle UVS + m\angle WVS = 180^\circ$$

... [Angles in a linear pair]

$$\therefore 4x + 2x = 180^\circ$$

$$\therefore 6x = 180^\circ$$

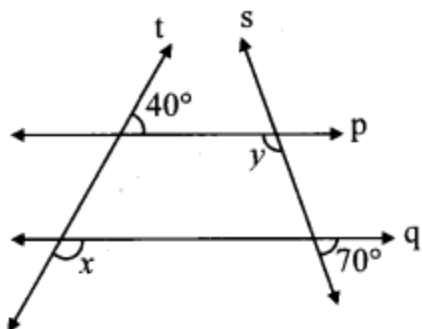
$$\therefore x = 180/6$$

$$\therefore x = 30^\circ$$

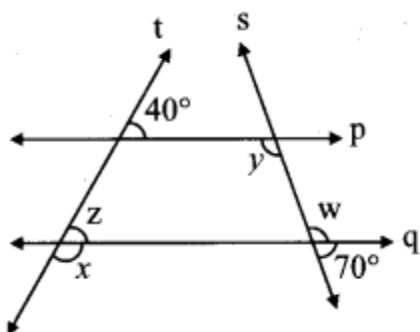
Question 2.

In the given figure, line $p \parallel$ line q . Line t and line s are transversals. Find measure of $\angle x$ and $\angle y$ using the measures of angles given in the figure.

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Solution:



i. Consider $\angle z$ as shown in figure.

line $p \parallel$ line q and line t is a transversal.

$\therefore m\angle z = 40^\circ \dots(i)$ [Corresponding angles]

$m\angle x + m\angle z = 180^\circ \dots$ [Angles in a linear pair]

$\therefore m\angle x + 40^\circ = 180^\circ \dots$ [From (i)]

$\therefore m\angle x = 180^\circ - 40^\circ$

$\therefore m\angle x = 140^\circ$

ii. Consider $\angle w$ as shown in the figure.

$m\angle w + 70^\circ = 180^\circ \dots$ [Angles in a linear pair]

$\therefore m\angle w = 180^\circ - 70^\circ$

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$$\therefore m\angle w = 110^\circ \dots(ii)$$

line $p \parallel$ line q and line s is a transversal.

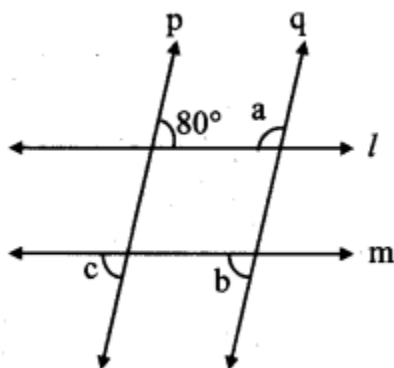
$$\therefore m\angle y = m\angle w \dots[\text{Alternate angles}]$$

$$\therefore m\angle y = 110^\circ \dots[\text{From (ii)}]$$

$$\therefore m\angle x = 140^\circ, m\angle y = 110^\circ$$

Question 3.

In the given figure, line $p \parallel$ line q , line $l \parallel$ line m . Find measures of $\angle a$, $\angle b$ and $\angle c$, using the measures of given angles. Justify your answers.



Solution:

i. line $p \parallel$ line q and line l is a transversal.

$$\therefore m\angle a + 80^\circ = 180^\circ \dots[\text{Interior angles}]$$

$$\therefore m\angle a = 180^\circ - 80^\circ$$

$$\therefore m\angle a = 100^\circ$$

ii. line $l \parallel$ line m and line p is a transversal.

$$\therefore m\angle c = 80^\circ \dots(i) [\text{Exterior alternate angles}]$$

iii. line $p \parallel$ line q and line m is a transversal.

$$\therefore m\angle b = m\angle c \dots [\text{Corresponding angles}]$$

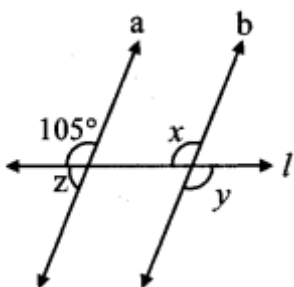
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$$m\angle b = 80^\circ \dots [\text{From (i)}]$$

$$\therefore m\angle a = 100^\circ, m\angle b = 80^\circ, m\angle c = 80^\circ$$

Question 4.

In the given figure, line $a \parallel$ line b , line l is a transversal. Find the measures of $\angle x$, $\angle y$, $\angle z$ using the given information.



Solution:

line $a \parallel$ line b and line l is a transversal.

$$\therefore m\angle x = 105^\circ \dots (i) \text{ [Corresponding angles]}$$

$$ii. m\angle y = m\angle x \dots \text{ [Vertically opposite angles]}$$

$$\therefore m\angle y = 105^\circ \dots [\text{From (i)}]$$

$$iii. m\angle z + 105^\circ = 180^\circ \dots [\text{Angles in a linear pair}]$$

$$\therefore m\angle z = 180^\circ - 105^\circ$$

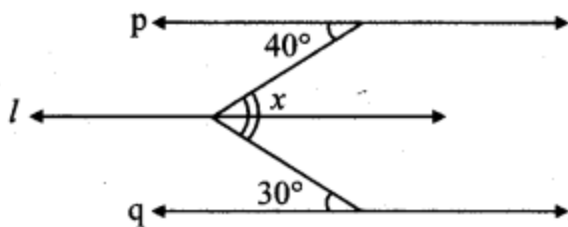
$$\therefore m\angle z = 75^\circ$$

$$\therefore m\angle x = 105^\circ, m\angle y = 105^\circ, m\angle z = 75^\circ$$

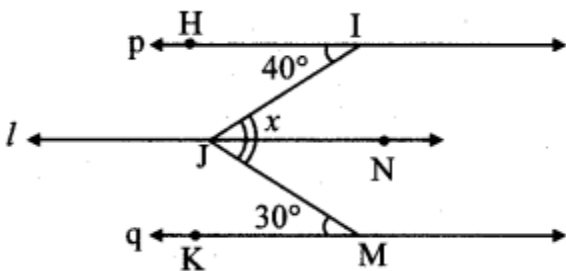
Question 5.

In the given figure, line $p \parallel$ line $l \parallel$ line q . Find $\angle x$ with the help of the measures given in the figure.

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Solution:



line $p \parallel$ line l and line IJ is a transversal.

$m\angle IJN = m\angle JIH \dots$ [Alternate angles]

$\therefore m\angle IJN = 40^\circ \dots(i)$

line $l \parallel$ line q and line MJ is a transversal.

$m\angle MJN = m\angle JMK \dots$ [Alternate angles]

$\therefore m\angle MJN = 30^\circ \dots(ii)$

Now, $m\angle x = m\angle IJN + m\angle MJN$

$\dots$ [Angle addition property]

$= 40^\circ + 30^\circ \dots$ [From (i) and (ii)]

$\therefore m\angle x = 70^\circ$

Intext Questions and Activities

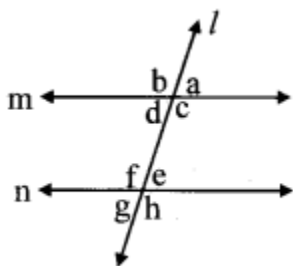
Question 1.

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When two parallel lines are intersected by a transversal eight angles are formed. If the measure of one of these eight angles is given, can we find measures of remaining seven angles? (Textbook pg, no. 9)

Solution:

Yes, we can find the measures of the remaining angles.



In the given figure, line $m \parallel$ line n and line l is a transversal.

$$m\angle a = 60^\circ (\text{say}) \dots (i)$$

$$i. m\angle a + m\angle b = 180^\circ \dots [\text{Angles in a linear pair}]$$

$$\therefore 60^\circ + m\angle b = 180^\circ \dots [\text{From (i)}]$$

$$\therefore m\angle b = 180^\circ - 60^\circ$$

$$\therefore m\angle b = 120^\circ \dots (ii)$$

$$ii. m\angle c = m\angle b \dots [\text{Vertically opposite angles}]$$

$$\therefore m\angle c = 120^\circ \dots (iii) [\text{From (ii)}]$$

$$iii. m\angle d = m\angle a \dots [\text{Vertically opposite angles}]$$

$$\therefore m\angle d = 60^\circ \dots (iv) [\text{From (i)}]$$

$$iv. m\angle e = m\angle d \dots [\text{Alternate angles}]$$

$$\therefore m\angle e = 60^\circ \dots [\text{From (iv)}]$$

$$v. m\angle f = m\angle c \dots [\text{Alternate angles}]$$

$$\therefore m\angle f = 120^\circ \dots [\text{From (iii)}]$$

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vi. $m\angle g = m\angle d$... [Corresponding angles]

$\therefore m\angle g = 60^\circ$... [From (iv)]

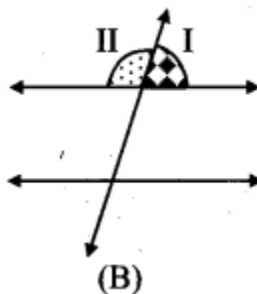
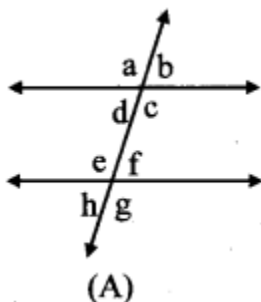
vii. $m\angle h = m\angle c$... [Corresponding angles]

$\therefore m\angle h = 120^\circ$... [From (iii)]

Question 2.

As shown in the figure (A), draw two parallel lines and their transversal on a paper. Draw a copy of the figure on another blank sheet using a trace paper, as shown in the figure (B). Colour part I and part II with different colours. Cut out the two parts with a pair of scissors. Place, part I and part II on each angle in the figure A and answer the following questions. (Textbook pg. no. 9)

1. Which angles coincide with part I?
2. Which angles coincide with part II?



Solution:

1. $\angle d$, $\angle f$ and $\angle h$ coincide with part I.
2. $\angle c$, $\angle e$ and $\angle g$ coincide with part II.



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- Chapter 1- Rational and Irrational Numbers (Practice Set 1.4)
- Chapter 2- Parallel Lines and Transversals (Practice Set 2.1)
- Chapter 2- Parallel Lines and Transversals (Practice Set 2.2)
- Chapter 2- Parallel Lines and Transversals (Practice Set 2.3)
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- Chapter 5- Expansion Formulae (Practice Set 5.3)
- Chapter 5- Expansion Formulae (Practice Set 5.4)
- Chapter 6- Factorisation of Algebraic Expressions (Practice Set 6.1)
- Chapter 6- Factorisation of Algebraic Expressions (Practice Set 6.2)
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- Chapter 6- Factorisation of Algebraic Expressions (Practice Set 6.4)
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- Chapter 10- Discount and Commission (Practice Set 10.2)
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- Chapter 15- Area (Practice Set 15.5)
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- Chapter 16- Surface Area and Volume (Practice Set 16.2)
- Chapter 16- Surface Area and Volume (Practice Set 16.3)
- Chapter 17- Factorisation of Algebraic Expressions (Practice Set 17.1)
- Chapter 17- Factorisation of Algebraic Expressions (Practice Set 17.2)

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The Maharashtra State Board of Secondary and Higher Secondary Education or MSBSHSE (Marathi: महाराष्ट्र राज्य माध्यमिक आणि उच्च माध्यमिक शिक्षण मंडळ), is an **autonomous and statutory body established in 1965**. The board was amended in the year 1977 under the provisions of the Maharashtra Act No. 41 of 1965.

The Maharashtra State Board of Secondary & Higher Secondary Education (MSBSHSE), Pune is an independent body of the Maharashtra Government. There are more than 1.4 million students that appear in the examination every year. The Maha State Board conducts the board examination twice a year. This board conducts the examination for SSC and HSC.

The Maharashtra government established the Maharashtra State Bureau of Textbook Production and Curriculum Research, also commonly referred to as Ebalbharati, in 1967 to take up the responsibility of providing quality textbooks to students from all classes studying under the Maharashtra State Board. MSBHSE prepares and updates the curriculum to provide holistic development for students. It is designed to tackle the difficulty in understanding the concepts with simple language with simple illustrations. Every year around 10 lakh students are enrolled in schools that are affiliated with the Maharashtra State Board.

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How many state boards are there in Maharashtra?

The Maharashtra State Board of Secondary & Higher Secondary Education, conducts the HSC and SSC Examinations in the state of Maharashtra through its nine Divisional Boards located at Pune, Mumbai, Aurangabad, Nasik, Kolhapur, Amravati, Latur, Nagpur and Ratnagiri.

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