

Class: Seven

Subject- Social Studies

Topic - Some Historical Personalities

Prepare a slideshow on any historical personality/national figure of Nepal. Explain his/her biography and mention their contributions to our society. (Note: You can use Microsoft PowerPoint or Google Slides or any other application as per your desire and comfort.)

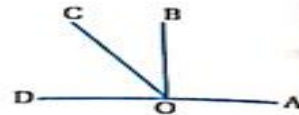
Subject- Mathematics

Source: Photo of exercise are given below.

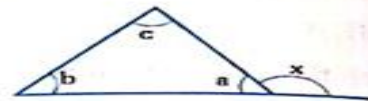
Work: Read & write different types of pairs of angles from pages 195 & 196.

Do your work neatly

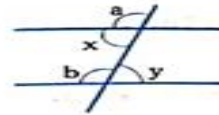
b) In the adjoining figure, $\angle COD = 2\angle BOC$ and $\angle AOB = 3\angle BOC$. Show that $\angle AOB$ is a right angle.



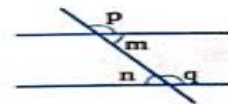
c) In the figure alongside, if $a + b + c = 180^\circ$, prove that $x = b + c$.



d) In the given figure, if $\angle a = \angle b$, prove that $\angle x = \angle y$.



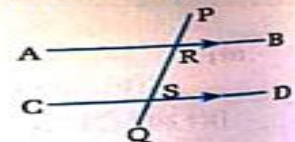
e) In the adjoining figure, $\angle m = \angle n$, prove that $\angle p = \angle q$.



4. a) Verify experimentally that the vertically opposite angles form due to the intersection of two line segments are equal.
- b) Experimentally verify that the sum of adjacent angles in linear pair is 180° .
- c) Verify experimentally that the angle formed by a revolving line in a complete rotation at a point is 360° .

12.3 Pairs of angles made by a transversal with parallel lines.

In the given figure, AB and CD are two parallel lines ($AB \parallel CD$). PQ is the transversal that intersects AB at R and CD at S.



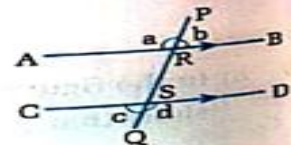
(i) Exterior and alternate exterior angles

$\angle a$, $\angle b$, $\angle c$ and $\angle d$ are lying outside the parallel lines. They are called exterior angles.

$\angle a$ and $\angle d$ are lying to the opposite side of the transversal. They are called alternate exterior angles. Similarly, $\angle b$ and $\angle c$ are another pair of alternate exterior angles.

The alternate exterior angles made by a transversal with parallel lines are always equal.

$\therefore \angle a = \angle d$ and $\angle b = \angle c$

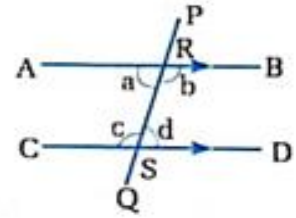


ii) Interior and co-interior angles

$\angle a$, $\angle b$, $\angle c$ and $\angle d$ are lying inside the parallel lines. They are called **interior angles**. $\angle a$ and $\angle c$ are a pair of interior angles lying to the same side of the transversal. They are called **co-interior (consecutive interior) angles**. Similarly, $\angle b$ and $\angle d$ are another pair of co-interior angles.

The sum of a pair of co-interior angles made by a transversal with parallel lines is always 180° .

$$\therefore \angle a + \angle c = 180^\circ \text{ and } \angle b + \angle d = 180^\circ$$



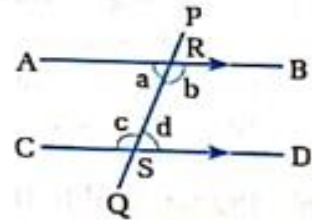
$\angle a$ and $\angle b$ are co-interior angles. So, $\angle a + \angle b = 180^\circ$.

ii) Alternate angles (or alternative interior angles)

$\angle a$ and $\angle d$ are a pair of interior angles lying to the opposite side of the transversal and they are not adjacent to each other. They are called **alternate angles**. $\angle b$ and $\angle c$ are another pair of alternate angles.

A pair of alternate angles made by a transversal with parallel lines are always equal.

$$\therefore \angle a = \angle d \text{ and } \angle b = \angle c.$$



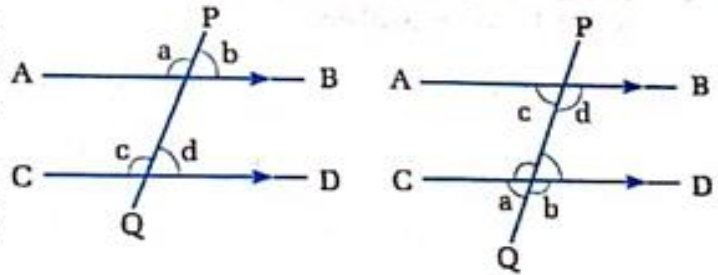
$\angle a$ and $\angle b$ are alternate angles. So, $\angle a = \angle b$.

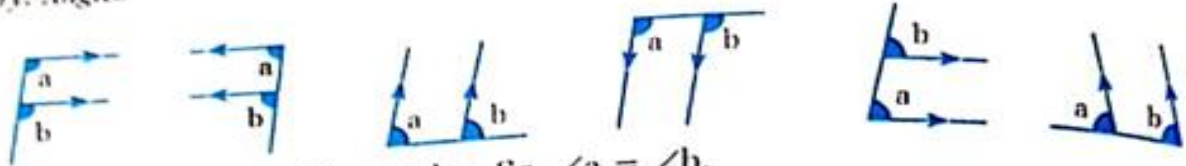
ii) Corresponding angles

$\angle a$ is an exterior and $\angle c$ is an interior angles lying to the same side of the transversal and they are not adjacent to each other. They are called **corresponding angles**. $\angle b$ and $\angle d$ are another pair of corresponding angles.

A pair of corresponding angles made by a transversal with parallel lines are always equal.

$$\therefore \angle a = \angle c \text{ and } \angle b = \angle d.$$

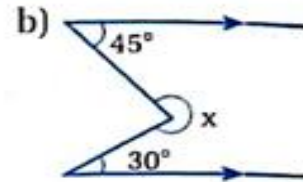
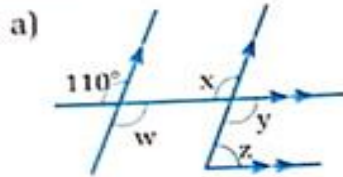




$\angle a$ and $\angle b$ are corresponding angles. So, $\angle a = \angle b$.

Worked out examples

Example 1: Find the sizes of unknown angles in the following figures.



Solution:

- a) $w = 110^\circ$ [Being vertically opposite angles]
 $x = w = 110^\circ$ [Being alternate angles]
 $y = x = 110^\circ$ [Being vertically opposite angles]
 $y + z = 180^\circ$ [Being the sum of a pair of co-interior angles]

or, $110^\circ + z = 180^\circ$

or, $z = 180^\circ - 110^\circ = 70^\circ$

So, $w = x = y = 110^\circ$ and $z = 70^\circ$

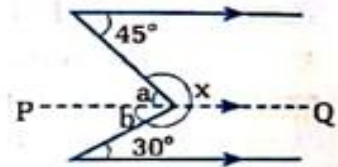
- b) PQ parallel to the given parallel lines is drawn.

$\angle a = 45^\circ$ [Being alternate angles]

$\angle b = 30^\circ$ [Being alternate angles]

$\angle a + \angle b = 45^\circ + 30^\circ = 75^\circ$

$\angle x = 360^\circ - (\angle a + \angle b)$ [$\angle a + \angle b + \angle x$ is an angle of a complete turn (360°)]
 $= 360^\circ - 75^\circ = 285^\circ$



Exercise - 12.2

Section A - Classwork

1. Look at the adjoining figure. Tell and write the answers in the blanks as quickly as possible.

- a) $\angle s$ and are alternate angles.
 b) $\angle p$ and are corresponding angles.
 c) $\angle r$ and are co-interior angles.
 d) $\angle q$ and $\angle x$ are angles.
 e) $\angle w$ and $\angle r$ are angles.
 f) $\angle s + \angle w =$

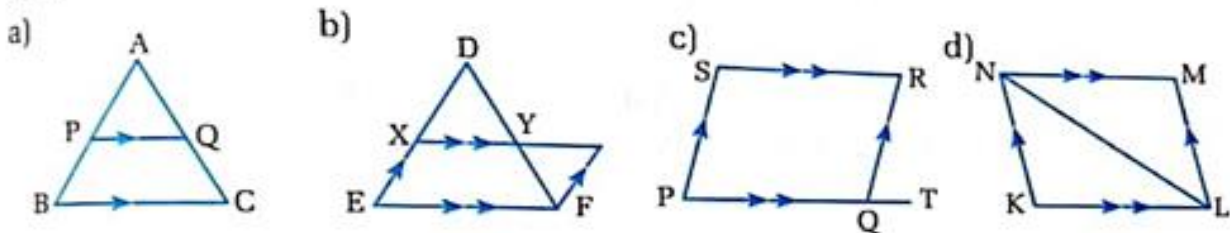


Each of the pair of these angles are formed between parallel lines. Tell and write the answers as quickly as possible.

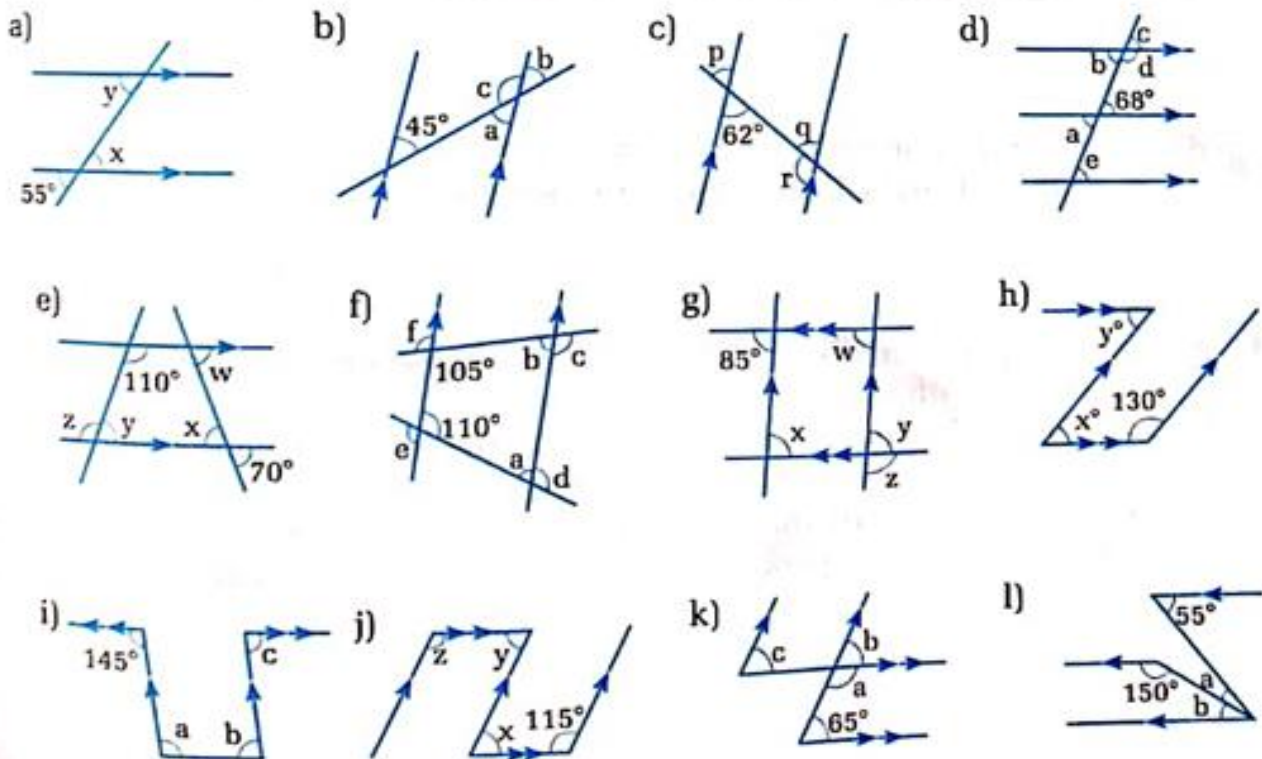
- a) If a° and 55° are a pair of alternate angles, then $a^\circ = \dots\dots\dots$
- b) If p° and 110° are a pair of corresponding angles, then $p^\circ = \dots\dots\dots$
- c) If x° and y° are a pair of co-interior angles, then $x^\circ + y^\circ = \dots\dots\dots$
- d) If m° and 120° are a pair of co-interior angles, then $m^\circ = \dots\dots\dots$
- e) If a° and 135° are a pair of alternate exterior angles, then $a^\circ = \dots\dots\dots$

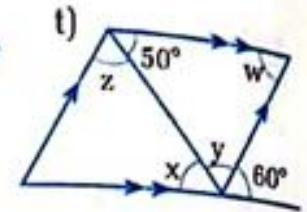
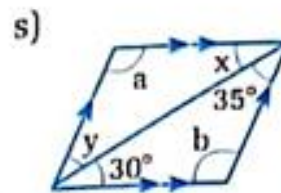
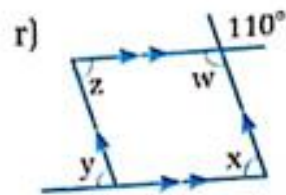
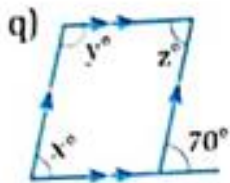
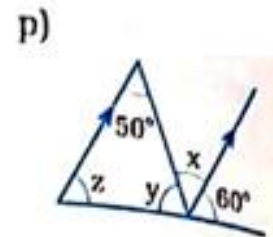
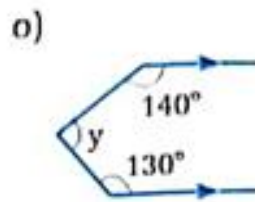
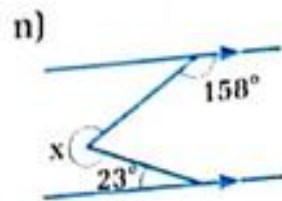
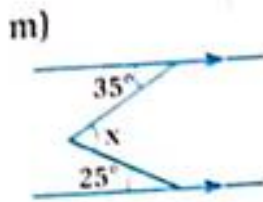
Section B

Discover the pairs of co-interior angles, alternate angles and corresponding angles and name them.

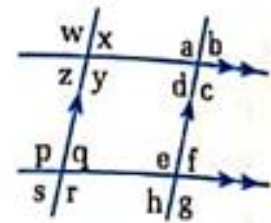


Find the sizes of unknown angles.

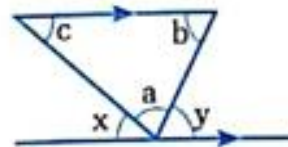




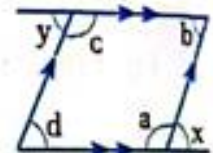
3. a) In the figure alongside, show that
- (i) $\angle w = \angle c$ (ii) $\angle x = \angle s$ (iii) $\angle y = \angle g$
 (iv) $\angle a = \angle r$ (v) $\angle d = \angle q$ (vi) $\angle p = \angle c$



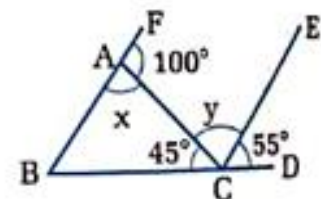
- b) In the adjoining figure, show that,
 $\angle a + \angle b + \angle c = 2$ right angles.



- c) In the given figure, show that $\angle a + \angle b + \angle c + \angle d = 360^\circ$.



- d) In the figure alongside, find $\angle x$ and $\angle y$, and show that BF and CE are parallel to each other.



4. a) Verify experimentally that the pair of corresponding angles made by a transversal with two parallel lines are equal.
 b) Experimentally verify that the pair of alternate angles made by a transversal with two parallel lines are equal.
 c) Verify experimentally that the sum of a pair of co-interior angles made by a transversal with two parallel lines are supplementary angles.

विषय - नेपाली

हिमाली गाउँ 'क वतामा दिइएको गार्हो शब्द पन्ध्र वटा चहन लगाई तीन पटक सार।

Subject- Science

- Do all exercise from chapter mixture.

The End.