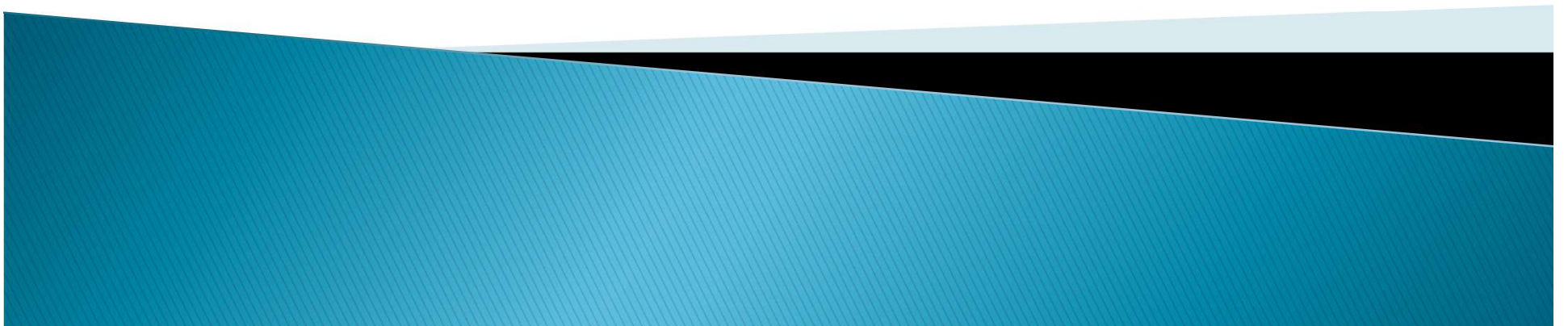
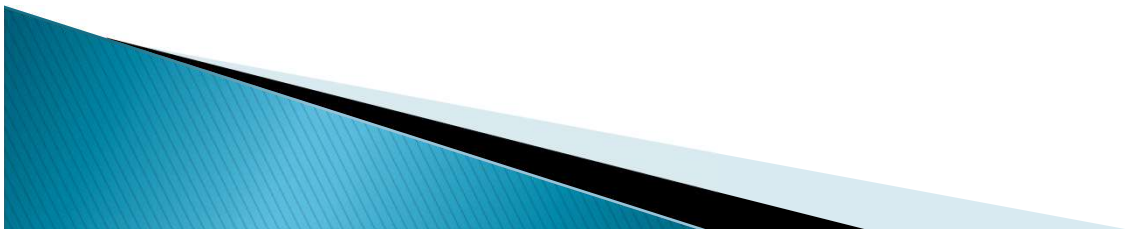
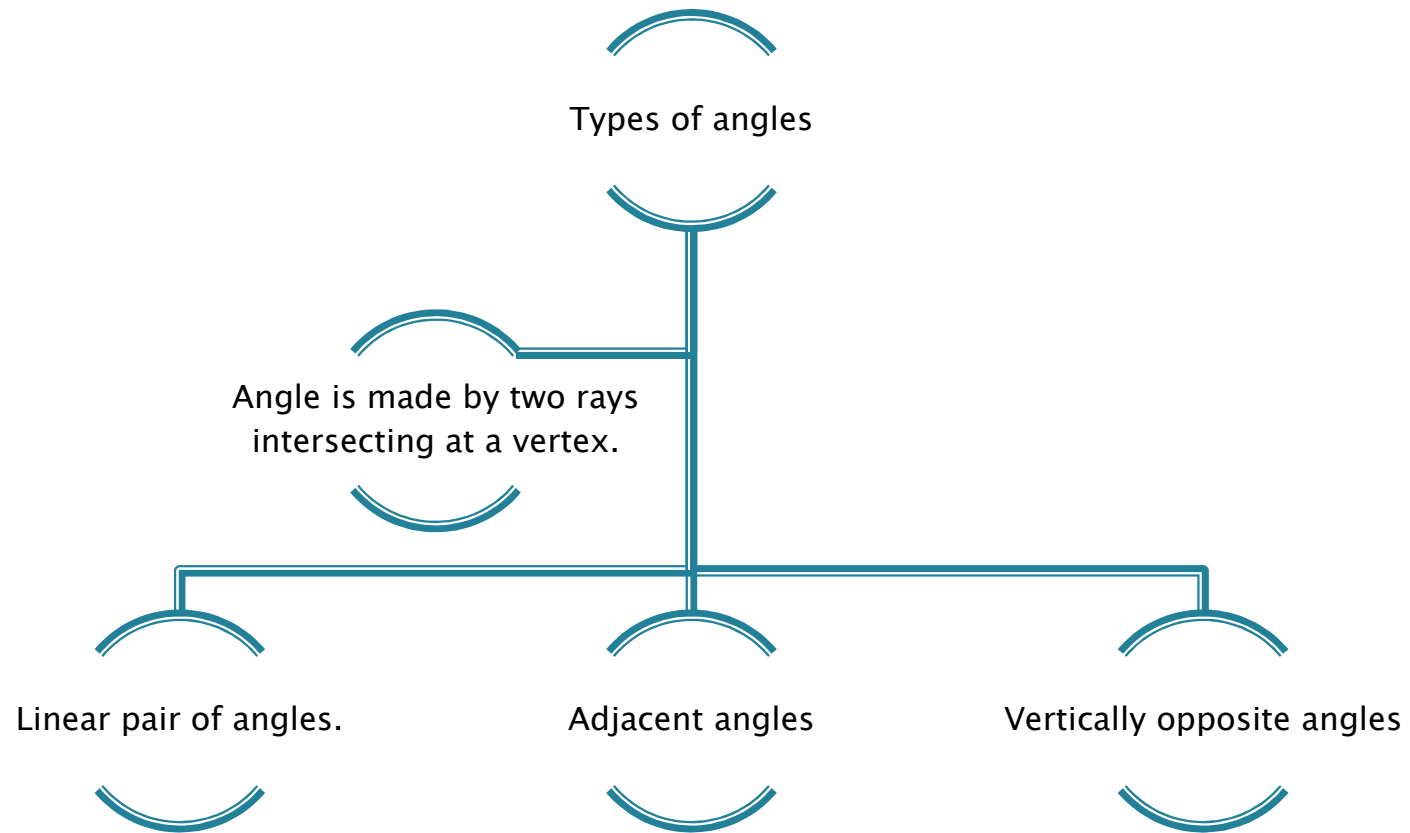


# Lines and Angles

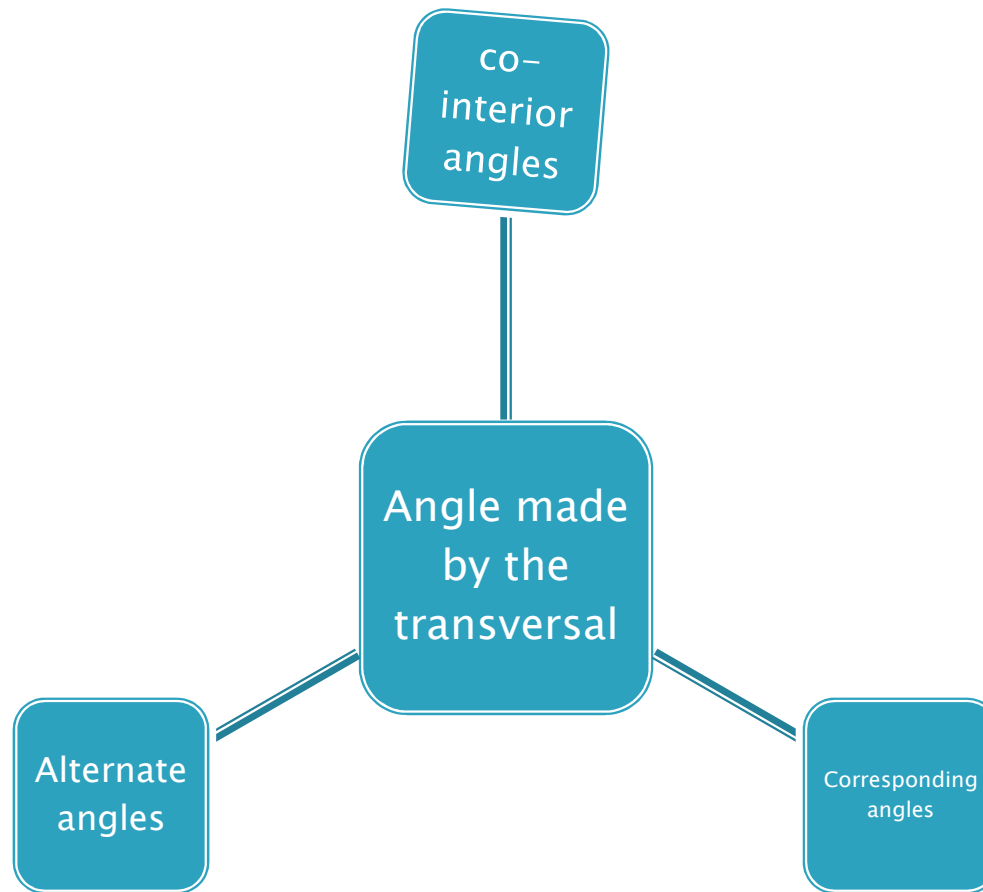


- ▶ Line is a straight path extending in both directions.
- ▶ Line segment is a part of line included between two end points
- ▶ Ray is a part of line with one end point .



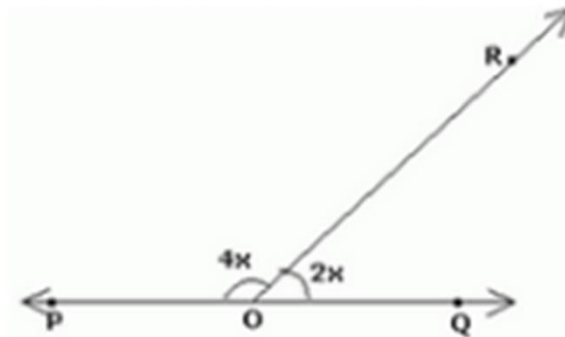


## ► Angles made by the transversal



### Question-2

In the figure, POQ is a line,  $\angle POR = 4x$  and  $\angle QOR = 2x$ . Find the value of  $x$ .



### Solution:

$\angle POR + \angle QOR = 180^\circ$  (Linear pair axiom)

But  $\angle POR = 4x$  and  $\angle QOR = 2x$

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

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

$$\vdash x = 30^\circ$$

$\therefore$  The value of  $x = 30^\circ$ .

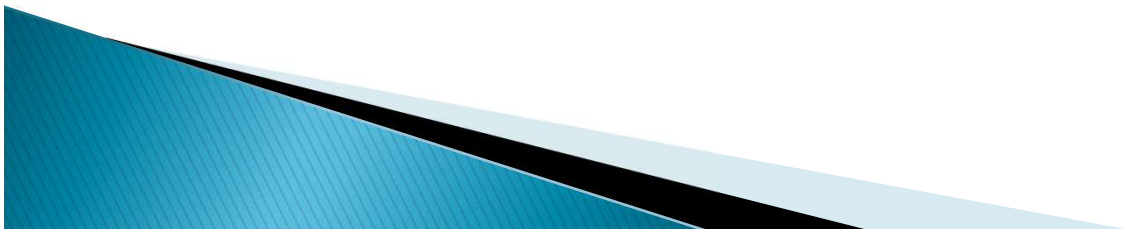
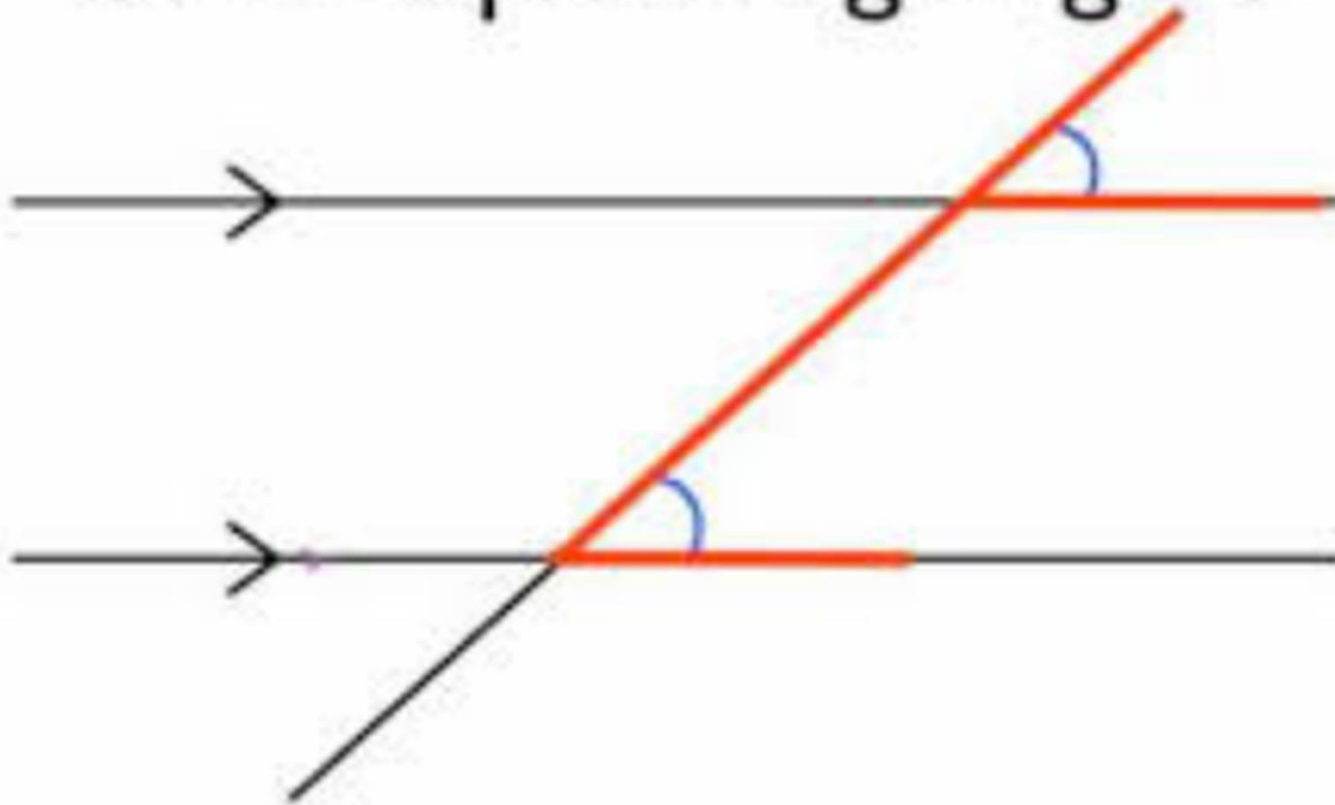


## Conditions for Parallel Lines

Lines  $l$  and  $m$  are parallel if any of the following is true:

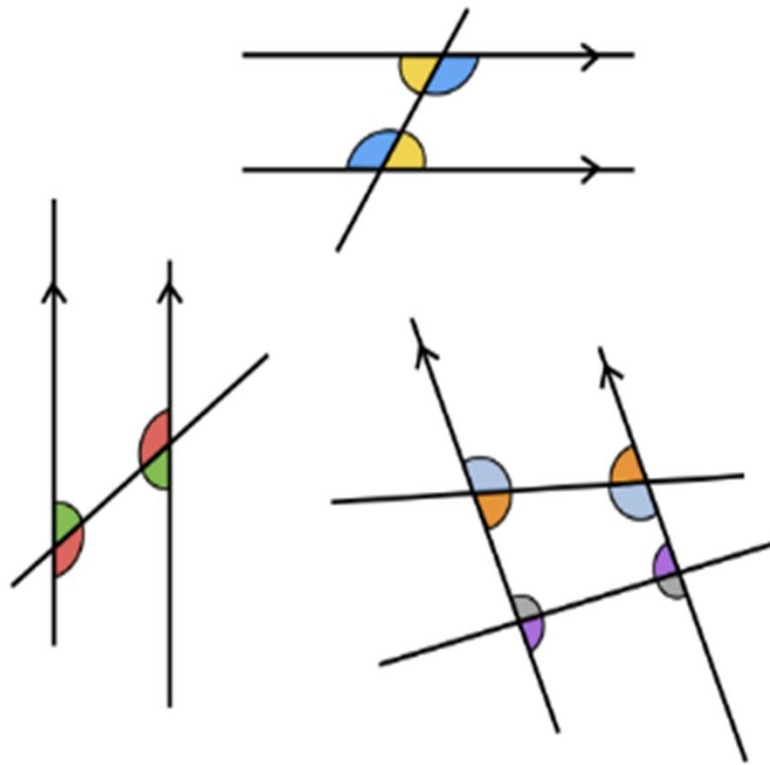
- Pairs of **alternate angles** are equal.  
 $\angle 3 = \angle 5$ ,  $\angle 1 = \angle 7$
- Pairs of **corresponding angles** are equal.  
 $\angle 2 = \angle 6$ ,  $\angle 4 = \angle 8$
- The sum of the **interior (or exterior) angles** on the same side of the transversal is  $180^\circ$ .  
 $\angle 3 + \angle 6 = 180^\circ$  or  
 $\angle 1 + \angle 8 = 180^\circ$

# Corresponding angles

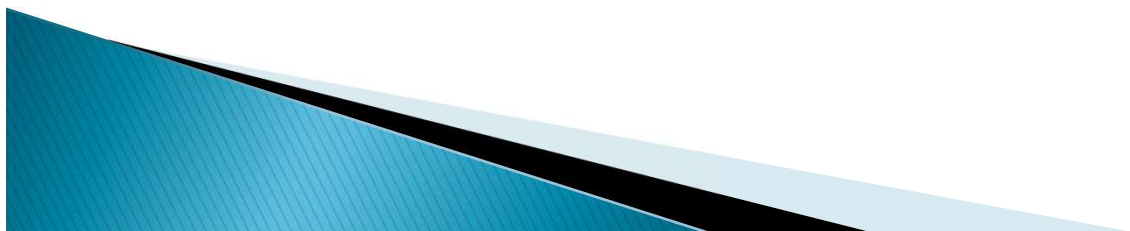
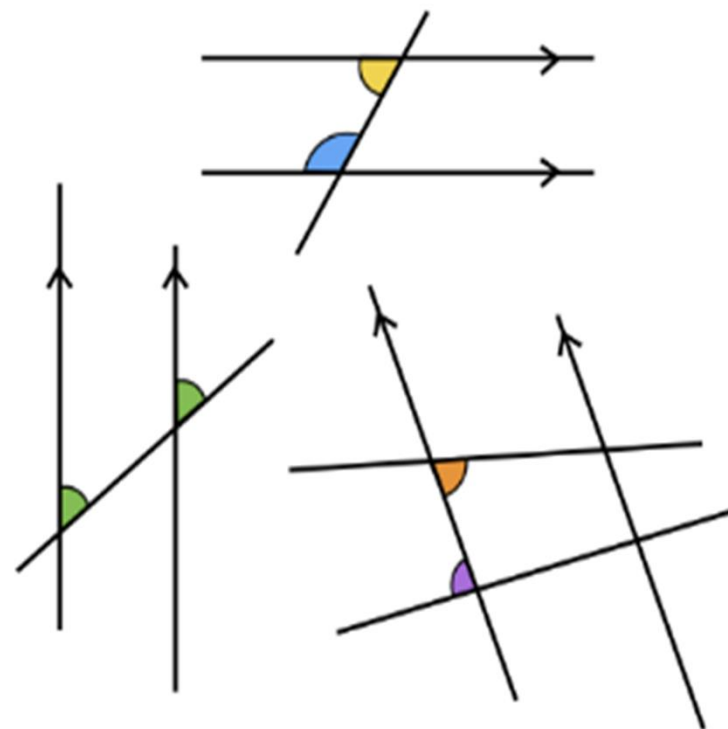


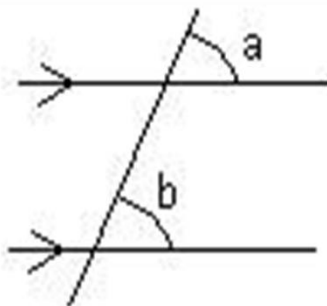
# Alternate angles

Pairs shown in the same colour

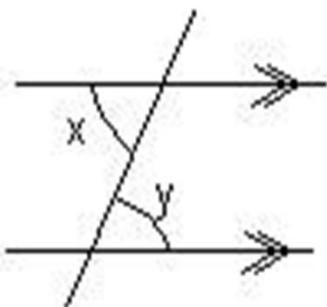


# Not alternate angles

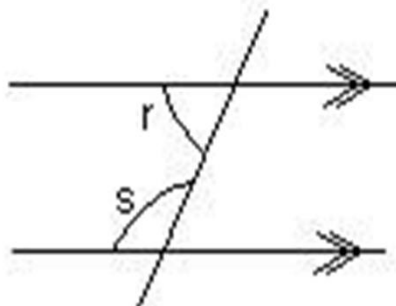




a and b are **corresponding angles**.  
 $a = b$

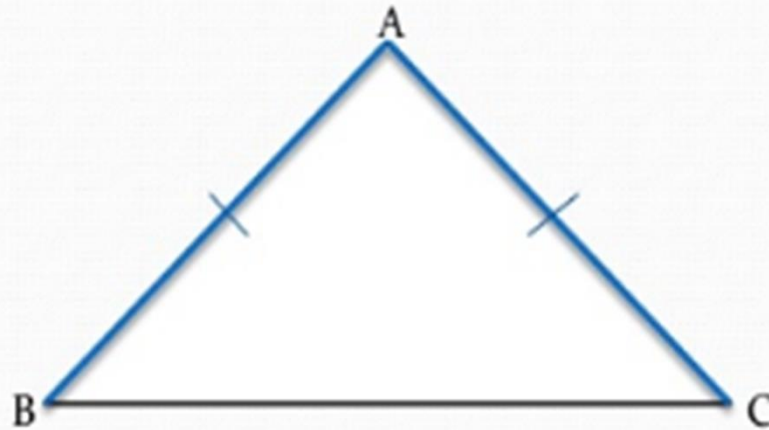


x and y are **alternate angles**.  
 $x = y$



r and s are **co-interior angles**.  
 $r + s = 180^\circ$

## PROPERTIES OF TRIANGLE



A Triangle in which two sides are equal in length is called **ISOSCELES TRIANGLE**. So,  $\triangle ABC$  is a isosceles triangle with  $AB = BC$ .