



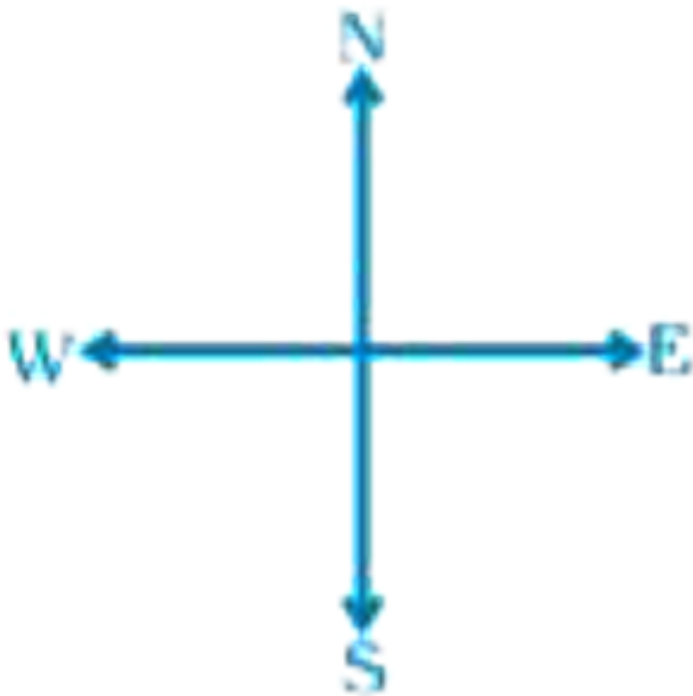
# MATHS

## BOOKS - NCERT EXEMPLAR

### LINES AND ANGLES

#### Solved Examples

1. The angles between North and East and North and West are



- A. complementary angles
- B. supplementary angles
- C. both acute angles
- D. both obtuse angles

**Answer: B**



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2. Which of the following pair of angles are supplementary?

A.  $48^\circ$ ,  $42^\circ$

B.  $60^\circ$ ,  $60^\circ$

C.  $75^\circ$ ,  $105^\circ$

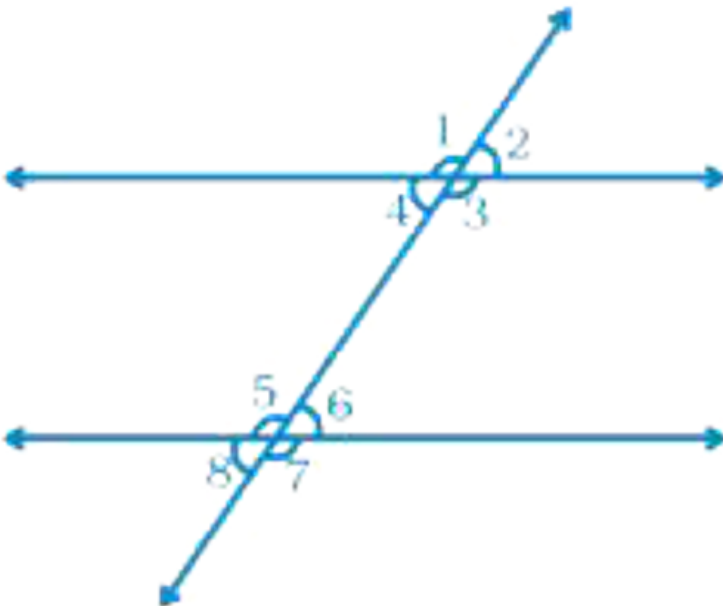
D.  $179^\circ$ ,  $2^\circ$

**Answer: C**



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**3.** In Figure, a pair of corresponding angles is



A.  $\angle 1, \angle 2$

B.  $\angle 3, \angle 6$

C.  $\angle 3, \angle 5$

D.  $\angle 3, \angle 7$

**Answer: D**



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**4.** If two lines are intersected by a transversal, then the number of pairs of interior angles on the same side of the transversal is

A. 1

B. 2

C. 3

D. 4

**Answer: A**



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**5. State whether the statements are True or False.**

Sum of two complementary angles is  $180^\circ$ .



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6. State whether the statements are True or False.

Sum of two supplementary angles is  $180^\circ$ .



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7. State whether the statements are True or False.

Sum of interior angles on the same side of a transversal with two parallel lines is  $90^\circ$



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**8.** State whether the statements are True or False.

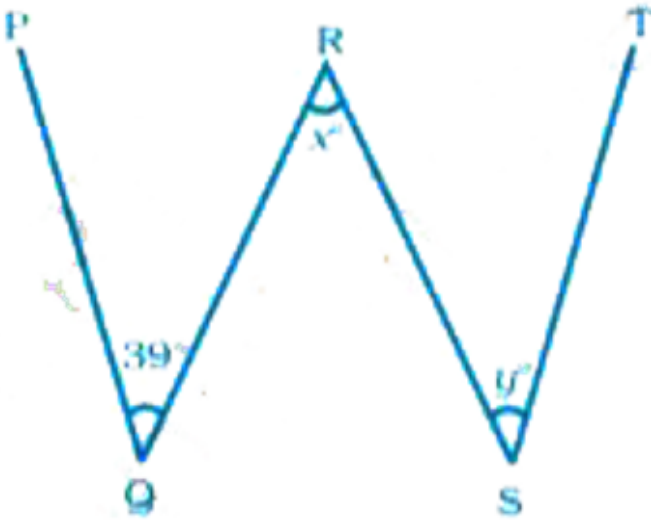
Vertically opposite angles are equal.



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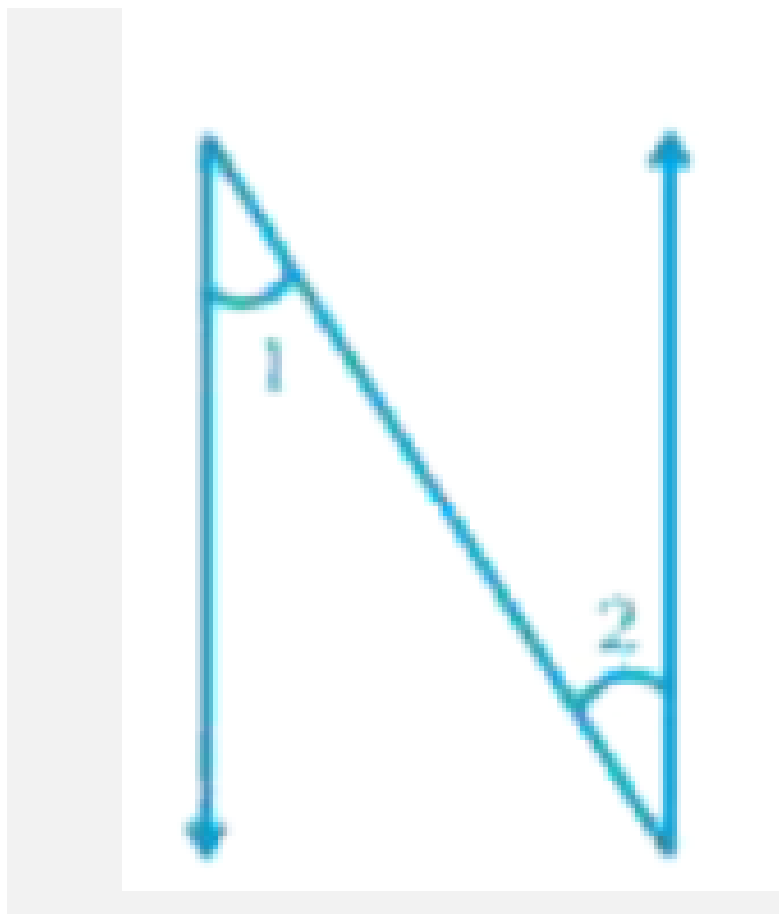


9. In Fig. 5.3, four line segments PQ, QR, RS and ST are making the letter W,  $PQ \parallel RS$  and  $QR \parallel ST$ . If angle between PQ and QR is  $39^\circ$ , find the values of x and y.



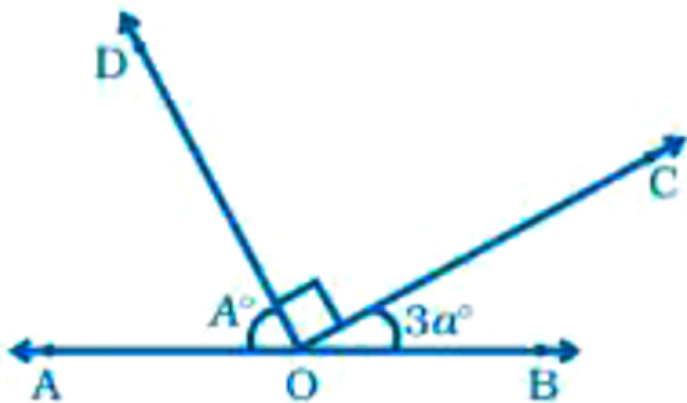
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10. In Fig. 5.4, are the angles 1 and 2 of the letter N forming a pair of adjacent angles? Give reasons.



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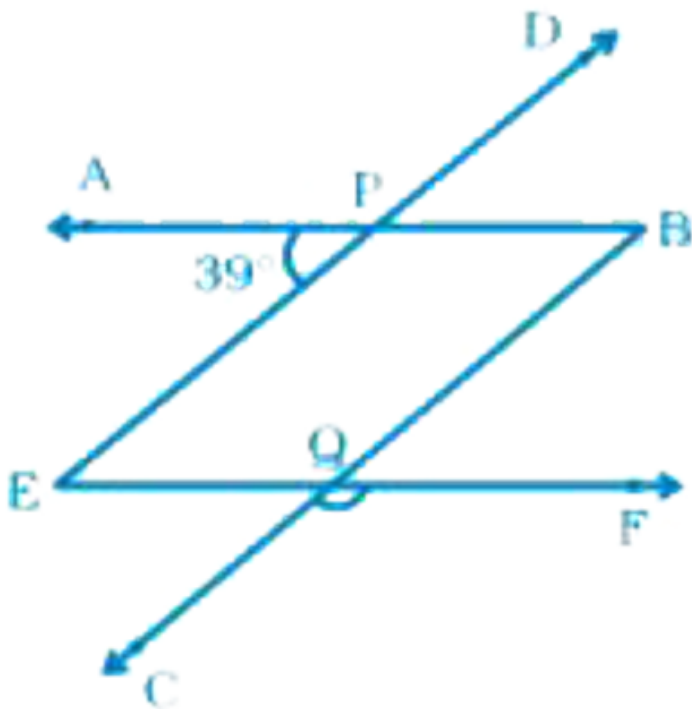
11. In Fig. 5.5, the points A, O and B are collinear. Ray OC  $\perp$  ray OD. Check whether (i)  $\angle AOD$  and  $\angle BOC$  are complementary, (ii)  $\angle AOC$  and  $\angle BOC$  are supplementary.



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12. In Fig. 5.6  $AB \parallel EF$ ,  $ED \parallel CB$  and  $\angle APE$  is  $39^\circ$ .

Find  $\angle CQF$ .



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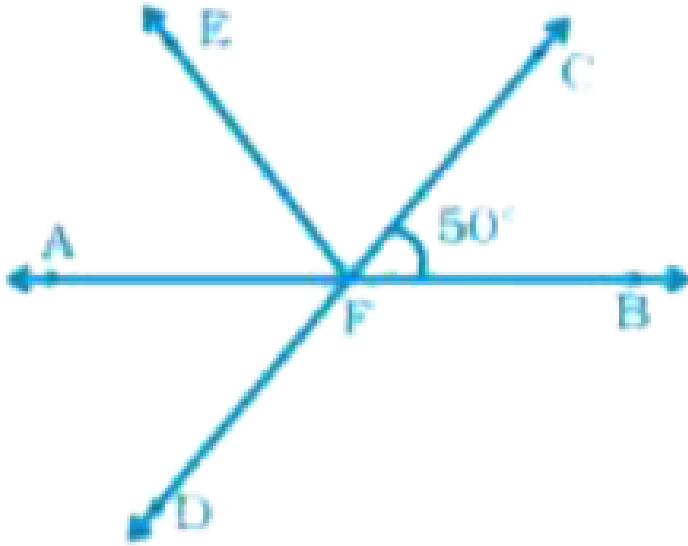
**13.** Out of a pair of complementary angles, one is two-third of the other. Find the angles.



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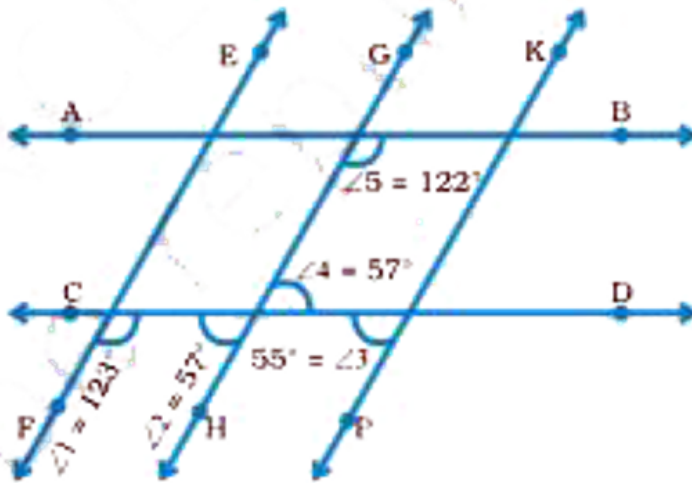
**14.** In Fig. 5.7,  $CD$  intersects the line  $AB$  at  $F$ ,  
 $\angle CFB = 50^\circ$  and  $\angle EFA = \angle AFD$ . Find

the measure of  $\angle EFC$ .



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**15.** In the given figure, find out which pair of lines are parallel.



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## Solved Examples Fill In The Blanks

1. fill in the blanks to make the statements true.

Two lines in a plane which never meet at any point are called \_\_\_\_\_.



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2. fill in the blanks to make the statements true.

Angles of a linear pair are \_\_\_\_\_ as well as

\_\_\_\_\_



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3. fill in the blanks to make the statements true.

Adjacent angles have a common vertex, a common \_\_\_\_\_ and no common \_\_\_\_\_.



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## Think And Discuss

1. Tell which statements are correct : If  $\angle X$  and  $\angle Y$  are congruent,

a.  $\angle X = \angle Y$

b.  $m\angle X = m\angle Y$

c.  $\angle X \cong \angle Y$



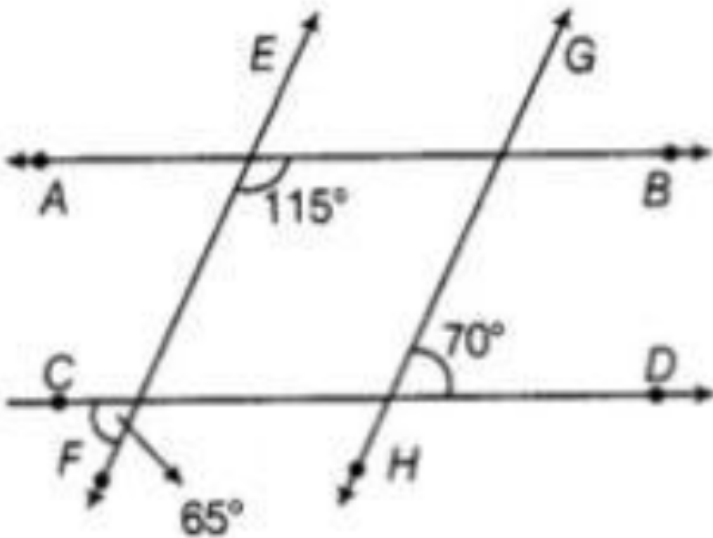
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2. Explain why vertically opposite angles must always be congruent .



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3. Can you find whether the lines EF , GH , KP , AB and CD are parallel or not by using other conditions of parallel lines ?



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4. Tell how many different angles would be formed by a transversal intersecting three parallel lines. How many different angle measures would there be?



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5. Explain how a transversal could intersect two other lines so that corresponding angles are not congruent.



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6. Explain whether a triangle can have two right angles. Can it have two obtuse angles?



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## Exercise

1. The angles between North and West and South and East are

A. complementary

B. supplementary

C. both are acute

D. both are obtuse

**Answer:**



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2. Angles between South and West and South and East are

A. vertically opposite angles

B. complementary angles

C. making a linear pair

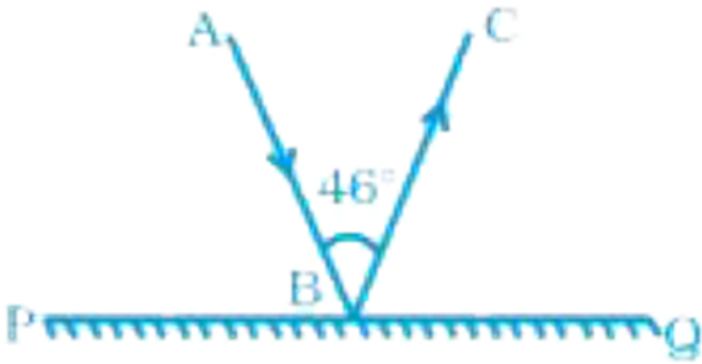
D. adjacent but not supplementary

**Answer:**

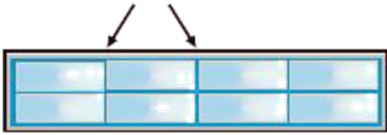


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**3.** In Fig. 5.9,  $PQ$  is a mirror,  $AB$  is the incident ray and  $BC$  is the reflected ray. If  $\angle ABC = 46^\circ$ , then  $\angle ABP$  is equal to



The sides of the windows are transversals to the top and bottom



The top and bottom of the windows are parallel

A.  $44^\circ$

B.  $67^\circ$

C.  $13^\circ$

D.  $62^\circ$



**Answer:**



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**4.** If the complement of an angle is  $79^\circ$ , then the angle will be of

A.  $1^\circ$

B.  $11^\circ$

C.  $79^\circ$

D.  $101^\circ$

**Answer:**



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5. Angles which are both supplementary and vertically opposite are

A.  $95^\circ$  ,  $85^\circ$

B.  $90^\circ$  ,  $90^\circ$

C.  $100^\circ$  ,  $80^\circ$

D.  $45^\circ$  ,  $45^\circ$

**Answer: B**



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**6.** The angle which makes a linear pair with an angle of  $61^\circ$  is of

A.  $29^\circ$

B.  $61^\circ$

C.  $122^\circ$

D.  $119^\circ$

**Answer:**



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7. The angles  $x$  and  $90^\circ - x$  are

- A. supplementary
- B. complementary
- C. vertically opposite
- D. making a linear pair

**Answer:**



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8. The angles  $x - 10^\circ$  and  $190^\circ - x$  are

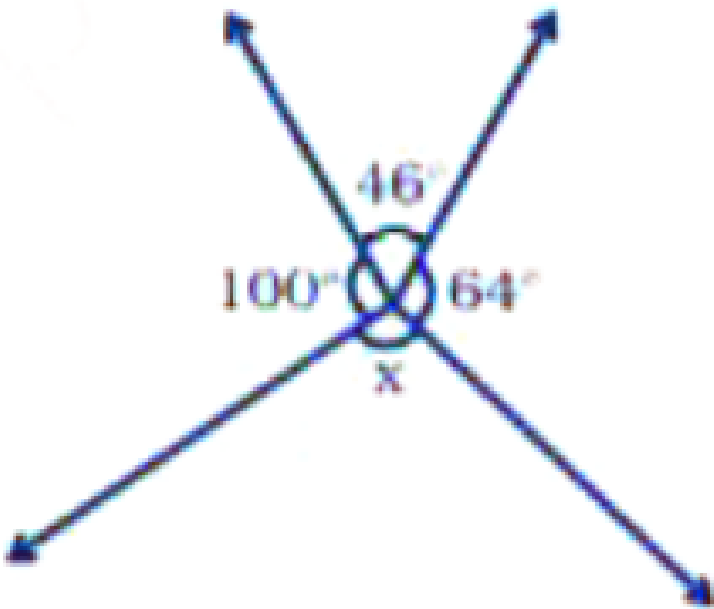
- A. interior angles on the same side of the transversal
- B. making a linear pair
- C. complementary
- D. supplementary

**Answer:**



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9. In Fig. 5.10, the value of  $x$  is



A.  $110^\circ$

B.  $46^\circ$

C.  $64^\circ$

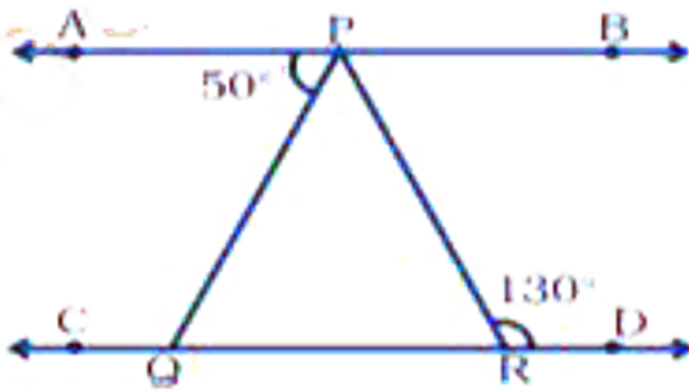
D.  $150^\circ$

**Answer:**



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**10.** In Fig. 5.11 , if  $AB \parallel CD$  ,  $\angle APQ = 50^\circ$  and  $\angle PRD = 130^\circ$  , then  $\angle QPR$  is



A.  $130^\circ$

B.  $50^\circ$

C.  $80^\circ$

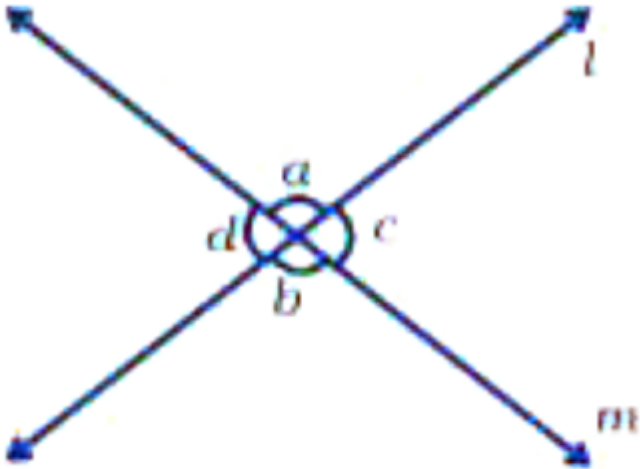
D.  $30^\circ$

**Answer: C**

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11. In Fig. 5.12, lines  $l$  and  $m$  intersect each other at a point. Which of the following is false?



A.  $\angle a = \angle b$

B.  $\angle d = \angle c$

C.  $\angle a + \angle d = 180^\circ$

D.  $\angle a = \angle d$

**Answer:**



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**12.** If angle P and angle Q are supplementary and the measure of angle P is  $60^\circ$ , then the measure of angle Q is

A.  $120^\circ$

B.  $60^\circ$

C.  $30^\circ$

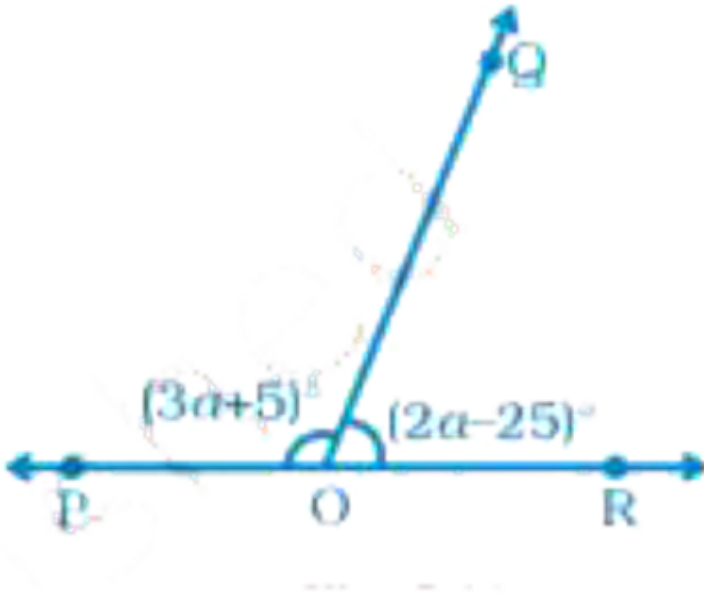
D.  $20^\circ$

**Answer:**



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13. In Fig. , POR is a line . The value of a is



A.  $40^\circ$

B.  $45^\circ$

C.  $55^\circ$

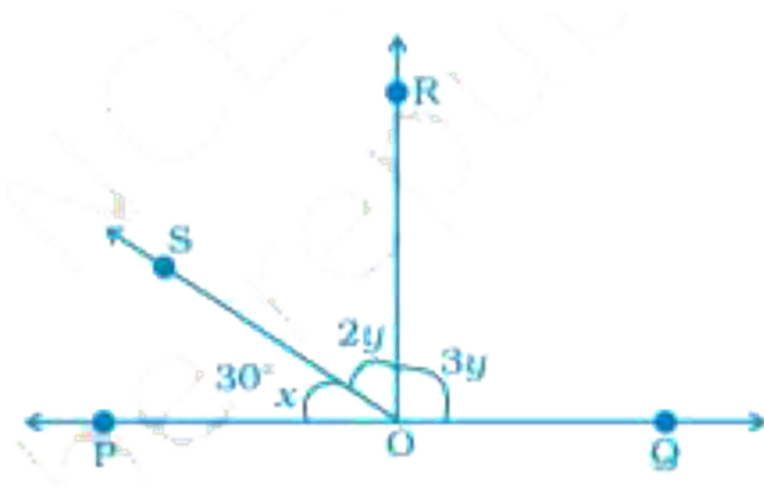
D.  $60^\circ$

**Answer:**

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**14.** In Fig. 5.14 .  $POQ$  is a line . If  $x = 30^\circ$  , then

$\angle QOR$  is



A.  $90^\circ$

B.  $30^\circ$

C.  $150^\circ$

D.  $60^\circ$

**Answer:**



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**15.** The measure of an angle which is four times its supplement is

A.  $36^\circ$

B.  $144^\circ$

C.  $16^\circ$

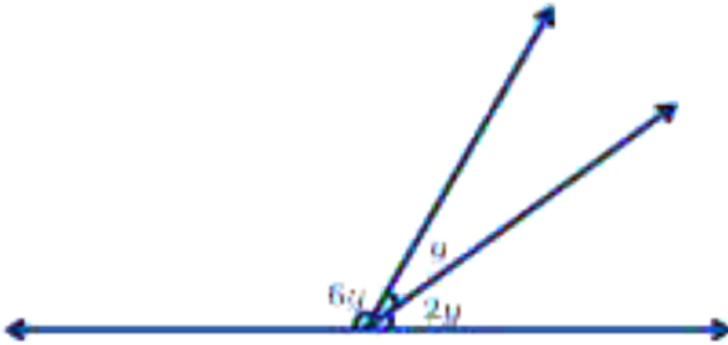
D.  $64^\circ$

**Answer:**



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16. In Fig. 5.15, the value of  $y$  is



A.  $30^\circ$

B.  $15^\circ$

C.  $20^\circ$

D.  $22.5^\circ$

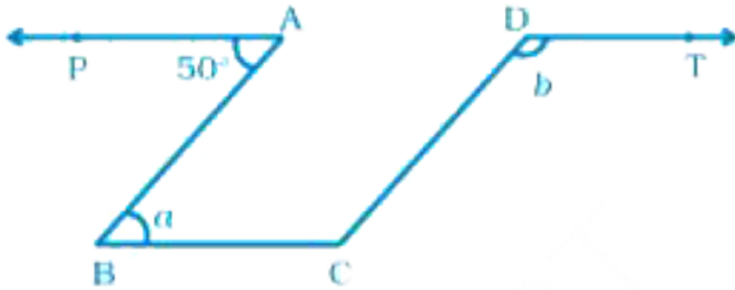
**Answer:**





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17. In Fig. 5.16,  $PA \parallel BC \parallel DT$  and  $AB \parallel DC$ . Then, the values of  $a$  and  $b$  are respectively.



A.  $60^\circ, 120^\circ$

B.  $50^\circ, 130^\circ$

C.  $70^\circ, 110^\circ$

D.  $80^\circ$ ,  $100^\circ$

**Answer:**



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**18.** The difference of two complementary angles is  $30^\circ$ . Then, the angles are

A.  $60^\circ$ ,  $30^\circ$

B.  $70^\circ$ ,  $40^\circ$

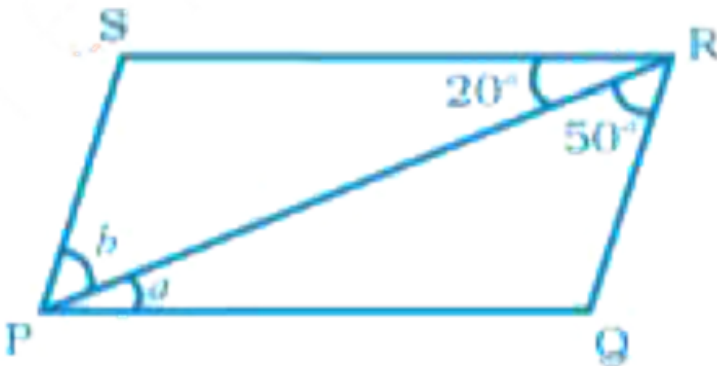
C.  $20^\circ$ ,  $50^\circ$

D.  $105^\circ$ ,  $75^\circ$

**Answer: A**

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**19.** In Fig.  $PQ \parallel SR$  and  $SP \parallel RQ$ . Then, angles  $a$  and  $b$  are respectively



A.  $20^\circ$ ,  $50^\circ$

B.  $50^\circ$ ,  $20^\circ$

C.  $30^\circ$ ,  $50^\circ$

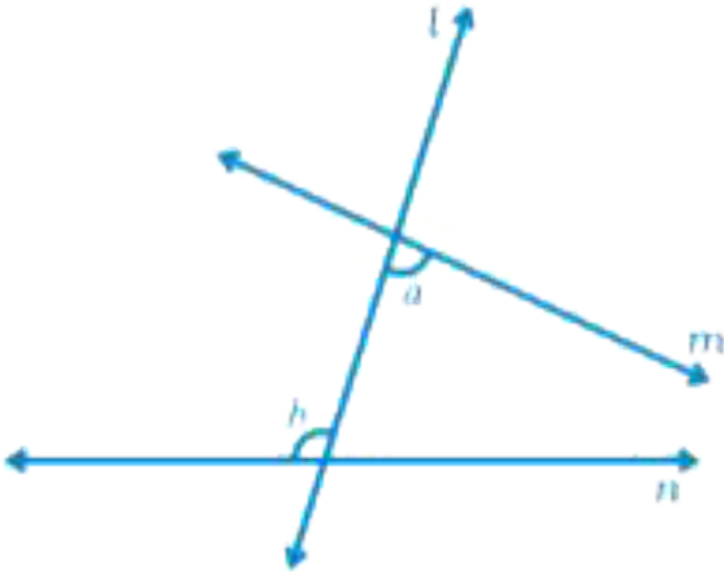
D.  $45^\circ$ ,  $35^\circ$

**Answer:**



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20. In Fig a and b are



A. alternate exterior angles

B. corresponding angles

C. alternate interior angles

D. vertically opposite angles

**Answer:**



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**21.** If two supplementary angles are in the ratio 1 : 2, then the bigger angle is

A.  $120^\circ$

B.  $125^\circ$

C.  $110^\circ$

D.  $90^\circ$

**Answer: A**



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22. In Fig. 5.19,  $\angle ROS$  is a right angle and  $\angle POR$  and  $\angle QOS$  are in the ratio 1 : 5. Then,  $\angle QOS$  measures



A.  $150^\circ$

B.  $75^\circ$

C.  $45^\circ$

D.  $60^\circ$

**Answer:**



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**23.** Statements a and b are as given below:

a : If two lines intersect, then the vertically opposite angles are equal.

b : If a transversal intersects, two other lines,



then the sum of two interior angles on the same side of the transversal is  $180^\circ$ .

Then

- A. Both a and b are true
- B. a is true and b is false
- C. a is false and b is true
- D. both a and b are false

**Answer:**



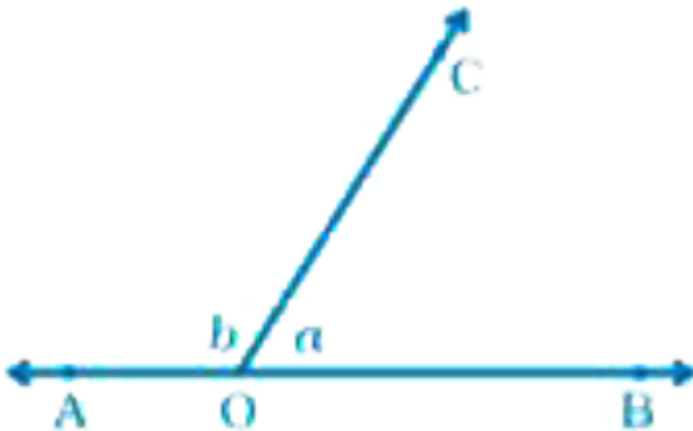
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24. For Fig. 5.20, statements p and q are given below:

p : a and b are forming a linear pair.

q : a and b are forming a pair of adjacent angles.

Then



A. both p and q are true

B.  $p$  is true and  $q$  is false

C.  $p$  is false and  $q$  is true

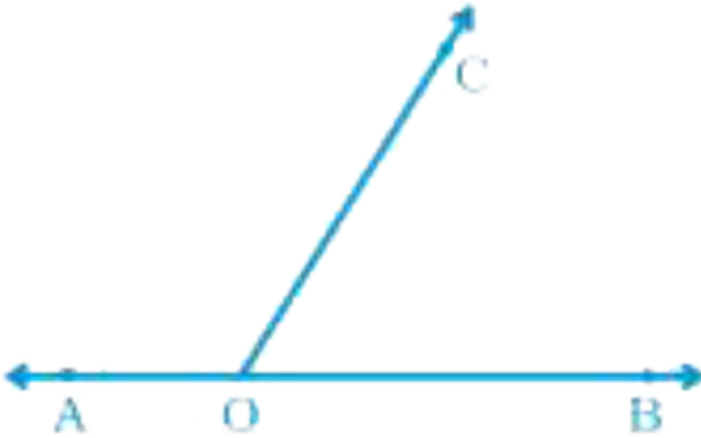
D. both  $p$  and  $q$  are false

**Answer:**



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**25.** In Fig. 5.21,  $\angle AOC$  and  $\angle BOC$  form a pair of  
of

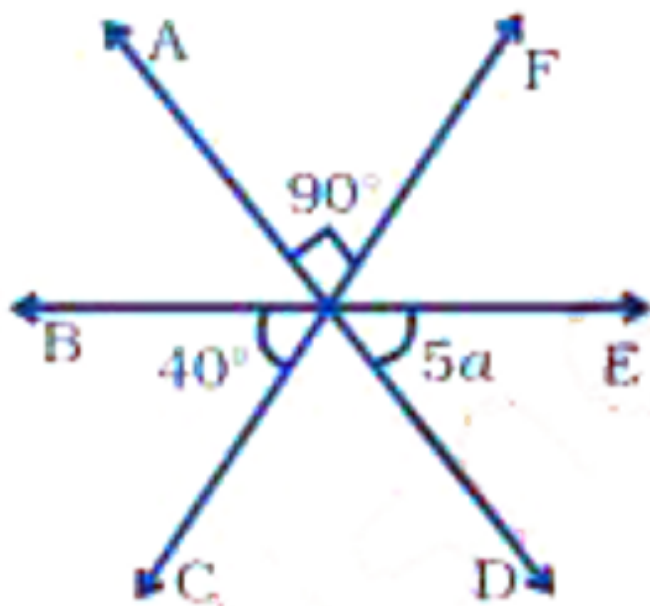


- A. vertically opposite angles
- B. complementary angles
- C. alternate interior angles
- D. supplementary angles

**Answer:**



26. In Fig. 5.22, the value of  $a$  is



A.  $20^\circ$

B.  $15^\circ$

C.  $5^\circ$

D.  $10^\circ$

**Answer: D**



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27. In Fig. 5.23, if  $QP \parallel SR$ , the value of  $a$  is



A.  $40^\circ$

B.  $30^\circ$

C.  $90^\circ$

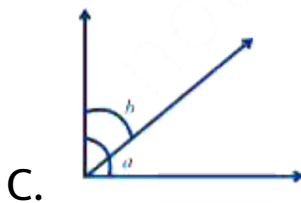
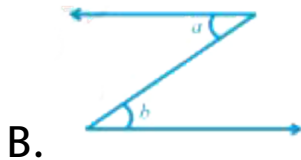
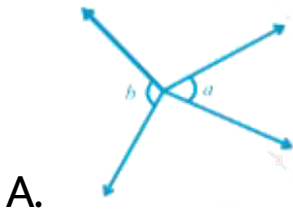
D.  $80^\circ$

**Answer:**



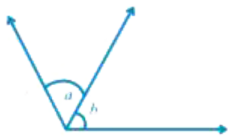
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28. In which of the following figures,  $a$  and  $b$  are forming a pair of adjacent angles?





D.



**Answer:**



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**29.** In a pair of adjacent angles, (i) vertex is always common, (ii) one arm is always common, and (iii) uncommon arms are always opposite rays

Then

A. All (i), (ii) and (iii) are true

B. (iii) is false

C. (i) is false but (ii) and (iii) are true

D. (ii) is false

**Answer:**

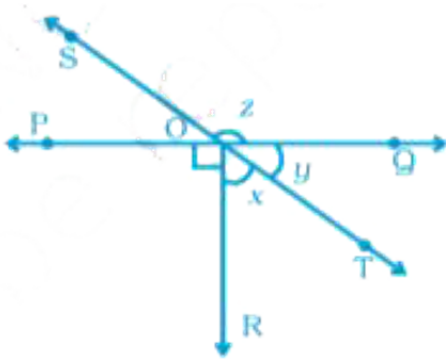


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**30.** In Fig. 5.25, lines PQ and ST intersect at O. If

$\angle POR = 90^\circ$  and  $x : y = 3 : 2$ , then  $z$  is equal

to



A.  $126^\circ$

B.  $144^\circ$

C.  $136^\circ$

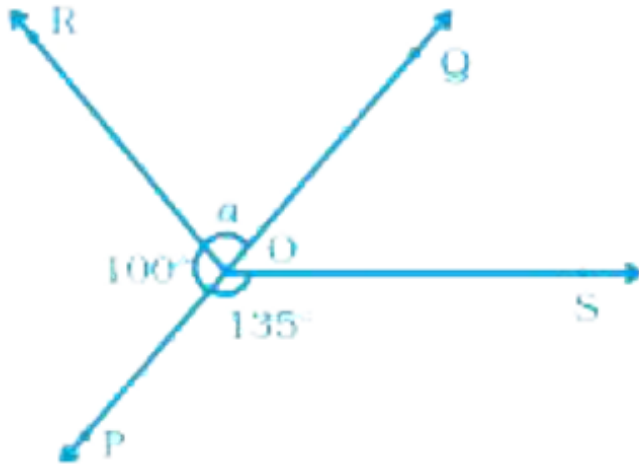
D.  $154^\circ$

**Answer:**



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31. In Fig. 5.26, POQ is a line, then  $a$  is equal to



A.  $35^\circ$

B.  $100^\circ$

C.  $80^\circ$

D.  $135^\circ$

**Answer:**



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**32.** Vertically opposite angles are always

A. supplementary

B. complementary

C. adjacent

D. equal

**Answer: D**



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**33.** In Fig. 5.27,  $a = 40^\circ$ . The value of  $b$  is



A.  $20^\circ$

B.  $24^\circ$

C.  $36^\circ$

D.  $120^\circ$

**Answer:**



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**34.** If an angle is  $60^\circ$  less than two times of its supplement, then the greater angle is

A.  $100^\circ$

B.  $80^\circ$

C.  $60^\circ$

D.  $120^\circ$

**Answer: A**

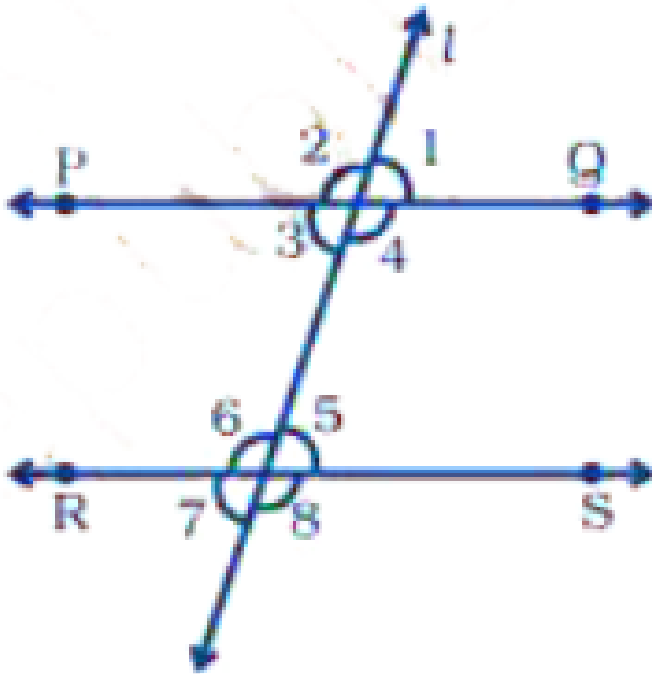


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**35.** In Fig. 5.28,  $PQ \parallel RS$ . If  $\angle 1 = (2a + b)^\circ$  and  $\angle 6 = (3a - b)^\circ$ , then the measure of  $\angle 2$  in



terms of  $b$  is



A.  $(2 + b)^\circ$

B.  $(3 - b)^\circ$

C.  $(108 - b)^\circ$

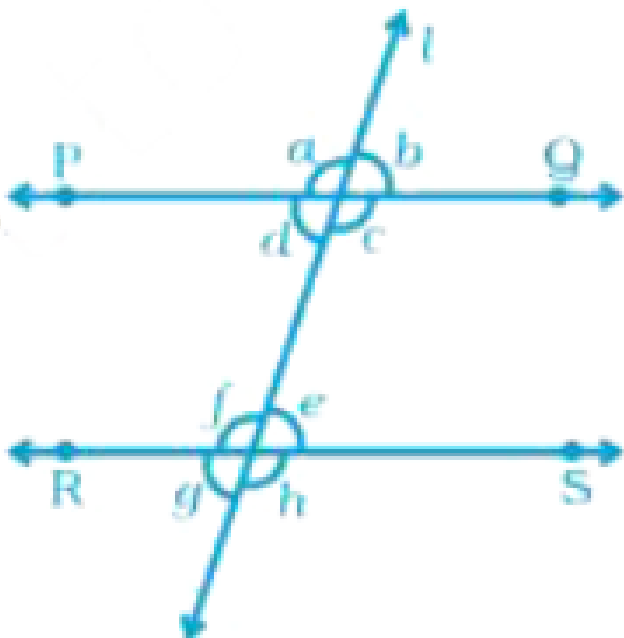
D.  $(180 - b)^\circ$

**Answer: C**



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**36.** In Fig. 5.29,  $PQ \parallel RS$  and  $a : b = 3 : 2$ . Then,  $f$  is equal to



A.  $36^\circ$

B.  $108^\circ$

C.  $72^\circ$

D.  $144^\circ$

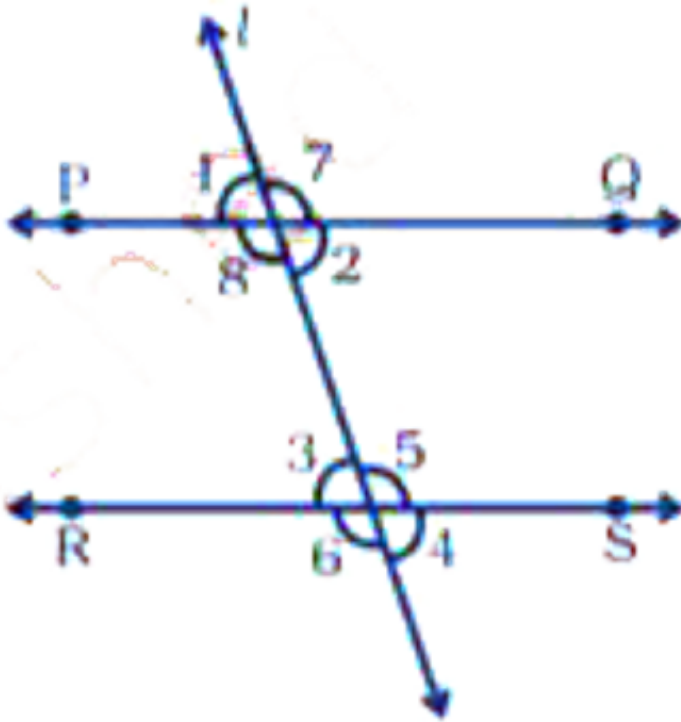
**Answer:**



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**37.** In Fig. 5.30, line  $l$  intersects two parallel lines  $PQ$  and  $RS$ . Then, which one of the

following is not true?



A.  $\angle 1 = \angle 3$

B.  $\angle 2 = \angle 4$

C.  $\angle 6 = \angle 7$

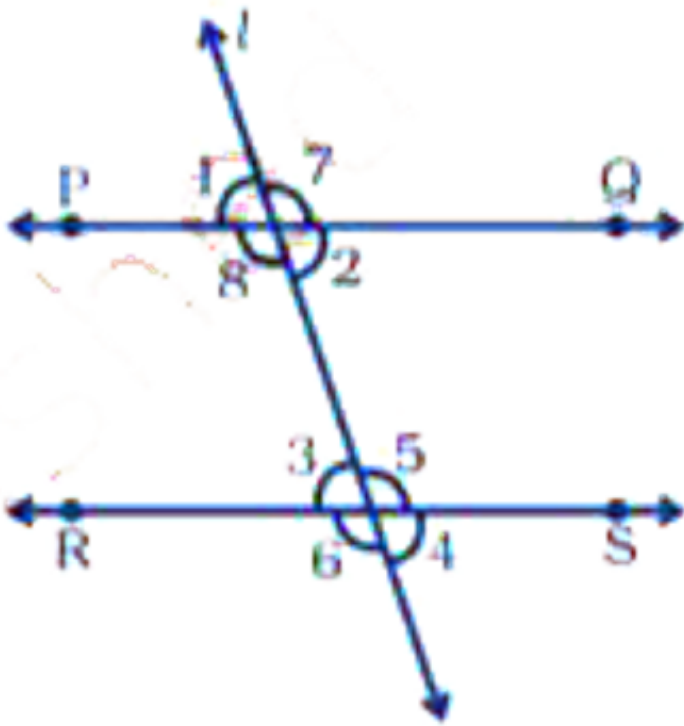
D.  $\angle 4 = \angle 8$

**Answer:**



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**38.** In Fig. 5.30, which one of the following is not true?



A.  $\angle 1 + \angle 5 = 180^\circ$

B.  $\angle 2 + \angle 5 = 180^\circ$

C.  $\angle 3 + \angle 8 = 180^\circ$

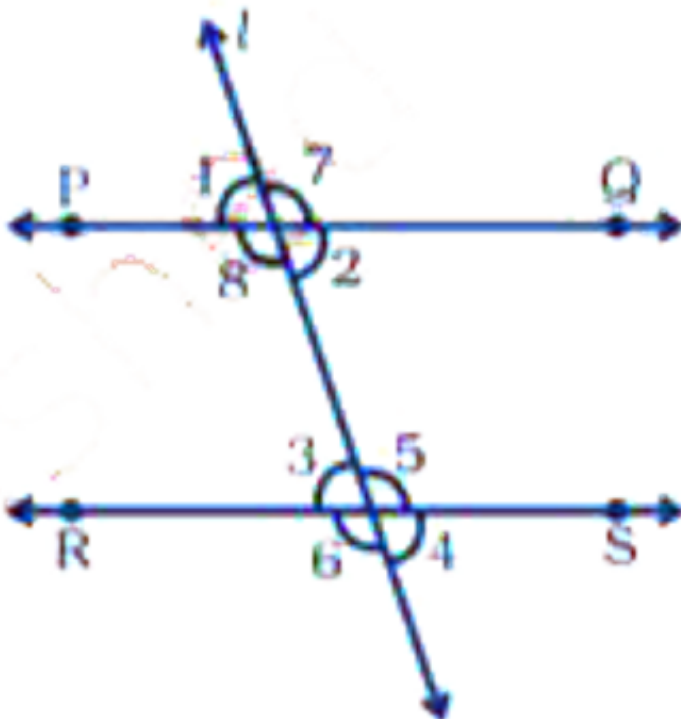
D.  $\angle 2 + \angle 3 = 180^\circ$

**Answer:**



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**39.** In Fig. 5.30, which of the following is true?



A.  $\angle 1 = \angle 5$

B.  $\angle 4 = \angle 8$

C.  $\angle 5 = \angle 8$

D.  $\angle 3 = \angle 7$

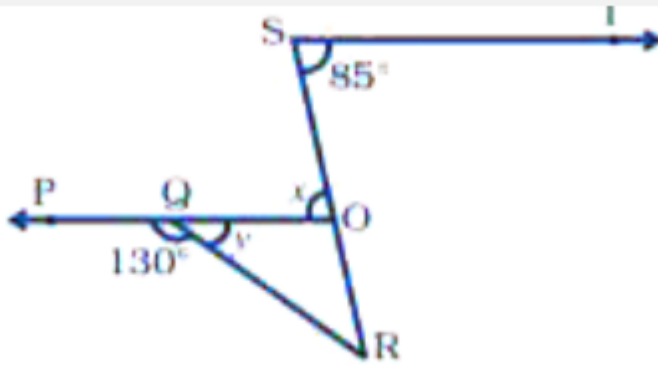
**Answer:**



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**40.** In Fig. 5.31,  $PQ \parallel ST$ . Then, the value of  $x + y$  is





A.  $125^\circ$

B.  $135^\circ$

C.  $145^\circ$

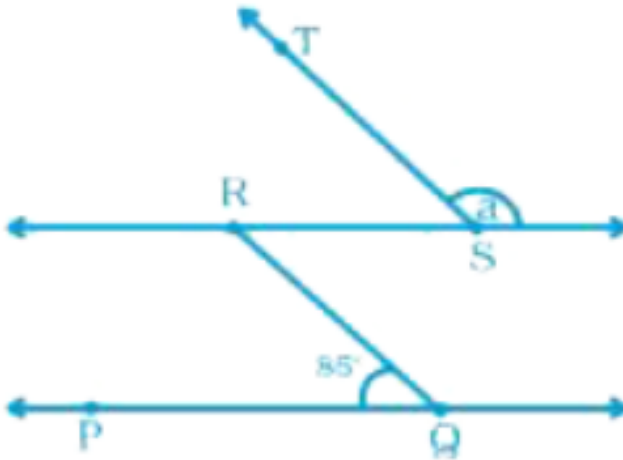
D.  $120^\circ$

**Answer: B**



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41. In Fig. 5.32, if  $PQ \parallel RS$  and  $QR \parallel TS$ , then the value  $a$  is



A.  $95^\circ$

B.  $90^\circ$

C.  $85^\circ$

D.  $75^\circ$

**Answer:**



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**42.** If a transversal intersects two parallel lines, then  
sum of interior angles on the same side of a transversal is \_\_\_\_\_



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**43.** If a transversal intersects two parallel lines,  
then

alternate interior angles have one common

\_\_\_\_\_



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**44.** If a transversal intersects two parallel lines,  
then

corresponding angles are on the \_\_\_\_\_ side of  
the transversal





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**45.** If a transversal intersects two parallel lines, then

alternate interior angles are on the \_\_\_\_\_ side of the transversal.



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**46.** Two lines in a plane which do not meet at a point anywhere are \_\_\_\_\_ called lines.



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47. Two angles forming a \_\_\_\_\_ pair are supplementary.



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48. The supplement of an acute is always \_\_\_\_\_ angle.



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49. The supplement of a right angle is always \_\_\_\_\_ angle.



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50. The supplement of an obtuse angle is always \_\_\_\_\_ angle.



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51. In a pair of complementary angles, each angle cannot be more than \_\_\_\_\_ .



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52. An angle is  $45^\circ$ . Its complementary angle will be \_\_\_\_\_ .



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53. An angle which is half of its supplement is of \_\_\_\_\_.



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54. State whether the statements are True or False.

Two right angles are complementary to each other.



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**55.** State whether the statements are True or False.

One obtuse angle and one acute angle can make a pair of complementary angles.



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**56.** State whether the statements are True or False.

Two supplementary angles are always obtuse angles.



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**57.** State whether the statements are True or False.

Two right angles are always supplementary to each other.



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**58.** State whether the statements are True or False.

One obtuse angle and one acute angle can make a pair of supplementary angles.



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**59.** State whether the statements are True or False.

Both angles of a pair of supplementary angles can never be acute angles.



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**60.** State whether the statements are True or False.

Two supplementary angles always form a linear pair.



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**61.** State whether the statements are True or False.

Two angles making a linear pair are always supplementary.





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**62.** State whether the statements are True or False.

Two angles making a linear pair are always adjacent angles.



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**63.** State whether the statements are True or False.

Vertically opposite angles form a linear pair.



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**64.** State whether the statements are True or False.

Interior angles on the same side of a transversal with two distinct parallel lines are complementary angles.



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**65.** State whether the statements are True or False.

Vertically opposite angles are either both acute angles or both obtuse angles.



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**66.** State whether the statements are True or False.

A linear pair may have two acute angles.



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**67.** State whether the statements are True or False.

An angle is more than  $45^\circ$ . Its complementary angle must be less than  $45^\circ$ .



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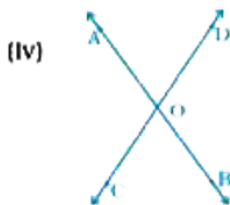
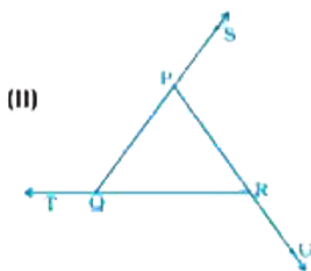
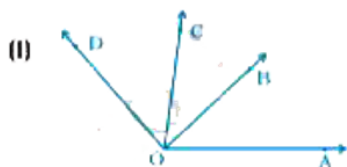
**68.** State whether the statements are True or False.

Two adjacent angles always form a linear pair.



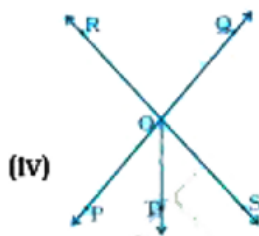
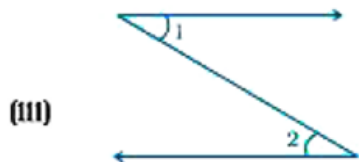
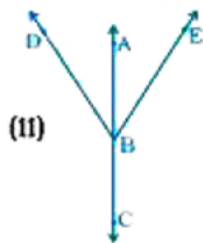
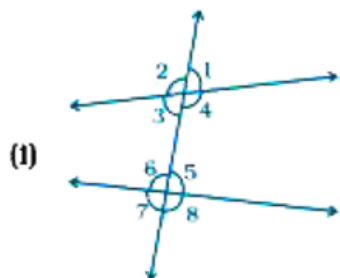
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69. Write down each pair of adjacent angles shown in the following figures:



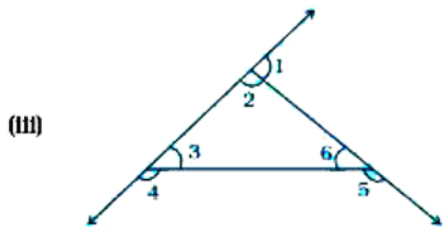
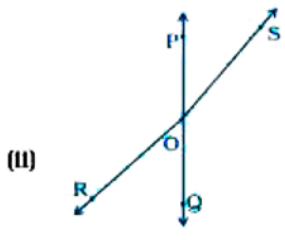
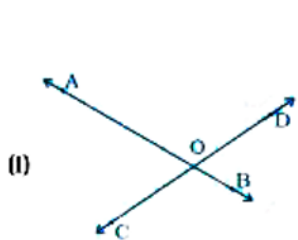
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70. In each of the following figures, write, if any, (i) each pair of vertically opposite angles, and (ii) each linear pair.



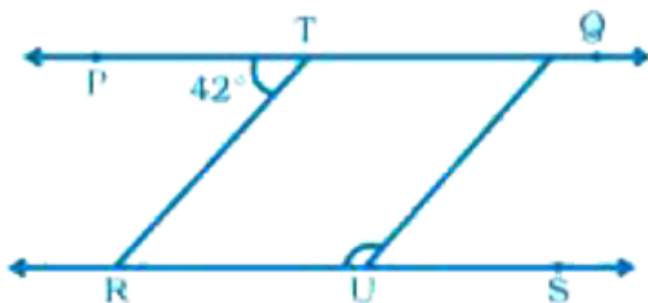
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71. Name the pairs of supplementary angles in the following figures:



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72. In Fig. 5.36,  $PQ \parallel RS$ ,  $TR \parallel QU$  and  $\angle PTR = 42^\circ$ . Find  $\angle QUR$ .



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73. The drawings below (Fig. 5.37), show angles formed by the goalposts at different positions of a football player. The greater the angle, the

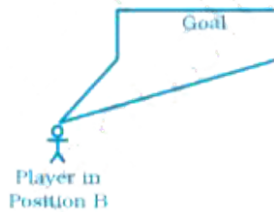
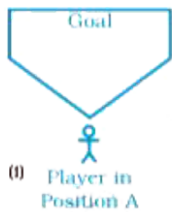
better chance the player has of scoring a goal.

For example, the player has a better chance of

scoring a goal from Position A than from

Position B.

The drawings below (Fig. 5.37), show angles formed by the goalposts at different positions of a football player. The greater the angle, the better chance the player has of scoring a goal. For example, the player has a better chance of scoring a goal from Position A than from Position B.



In Parts (a) and (b) given below it may help to

trace the diagrams and draw and measure

angles.

(a) Seven football players are practicing their

kicks. They are lined up in a straight line in front of the goalpost [Fig.(ii)]. Which player has the best (the greatest) kicking angle?

(b) Now the players are lined up as shown in Fig. (iii). Which player has the best kicking angle?

(c) Estimate atleast two situations such that the angles formed by different positions of two players are complement to each other.



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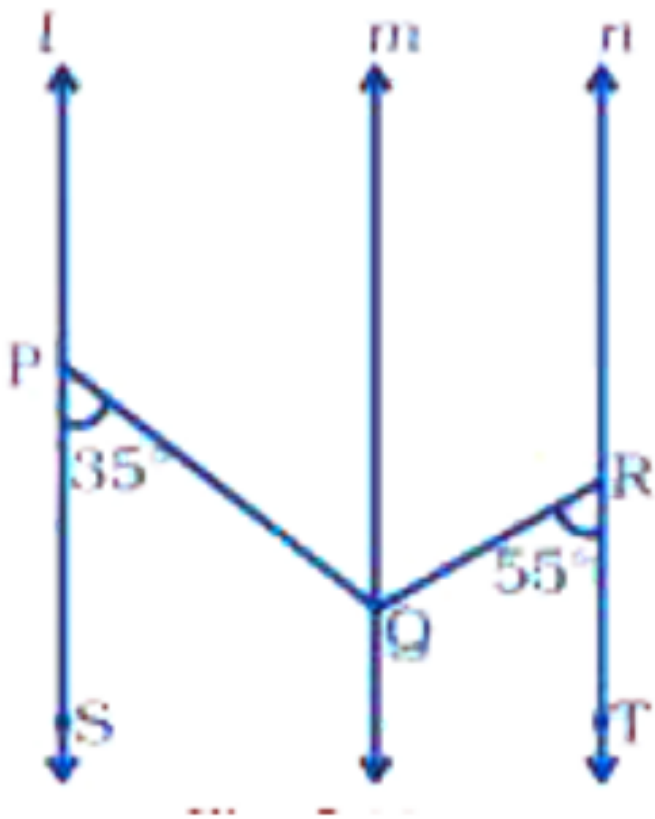
**74.** The sum of two vertically opposite angles is  $166^\circ$ . Find each of the angles.



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**75.** In Fig. 5.38,  $l \parallel m \parallel n$ .  $\angle QPS = 35^\circ$  and  $\angle QRT = 55^\circ$ . Find  $\angle PQR$ .





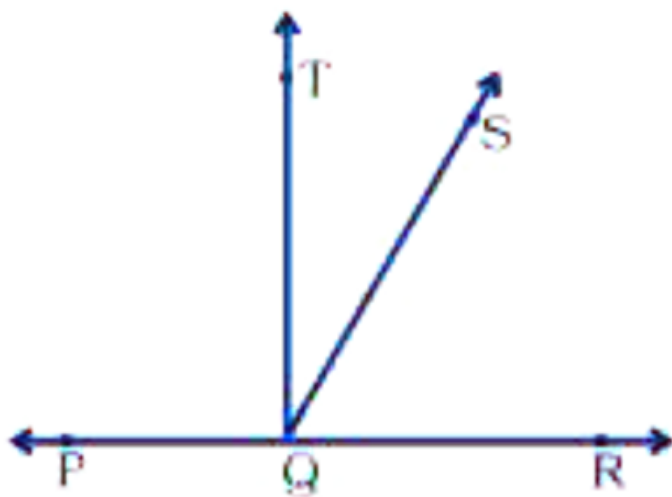
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76. In Fig. 5.39, P, Q and R are collinear points and  $TQ \perp PR$ ,

Name, (a) pair of complementary angles

(b) two pairs of supplementary angles.

(c) four pairs of adjacent angles.

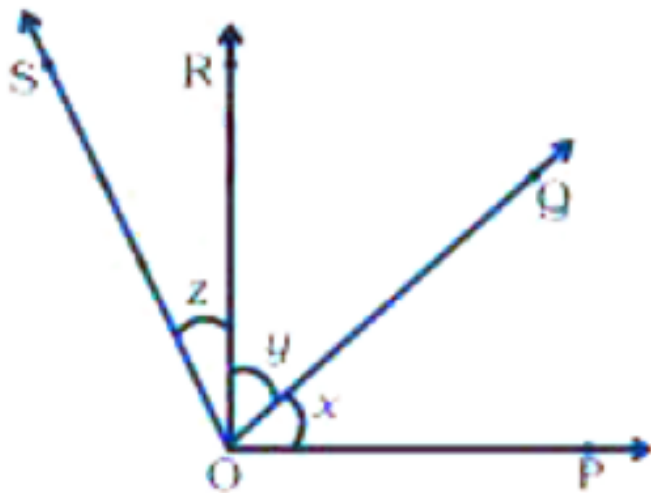


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77. In Fig. 5.40,  $OR \perp OP$ .

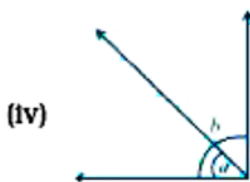
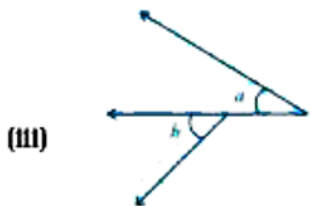
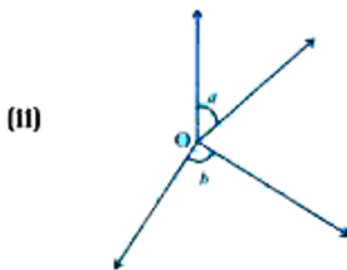
(i) Name all the pairs of adjacent angles.

(ii) Name all the pairs of complementary angles.



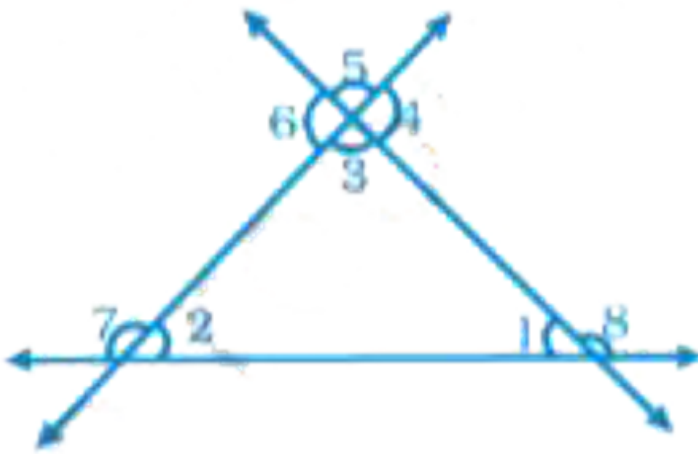
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78. In (Fig 5.42) are the following pairs of angles adjacent? Justify your answer.



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79. In Fig. 5.43, write all the pairs of supplementary angles.



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**80.** What is the type of other angle of a linear pair if

- (a) one of its angle is acute?
- (b) one of its angles is obtuse?
- (c) one of its angles is right?



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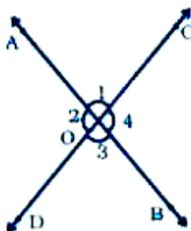
**81.** Can two acute angles form a pair of supplementary angles? Give reason in support of your answer.



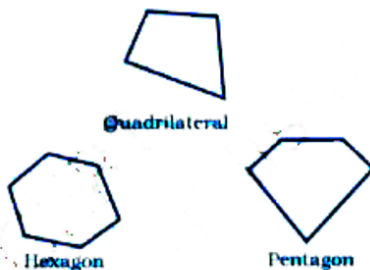
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**82.** Two lines  $AB$  and  $CD$  intersect at  $O$  (Fig. 5.44). Write all the pairs of adjacent angles by

taking angles 1, 2, 3, and 4 only.



Polygon	Number of Sides
Triangle	3
Quadrilateral	4
Pentagon	5
Hexagon	6
Heptagon	7
Octagon	8
$n$ -gon	$n$



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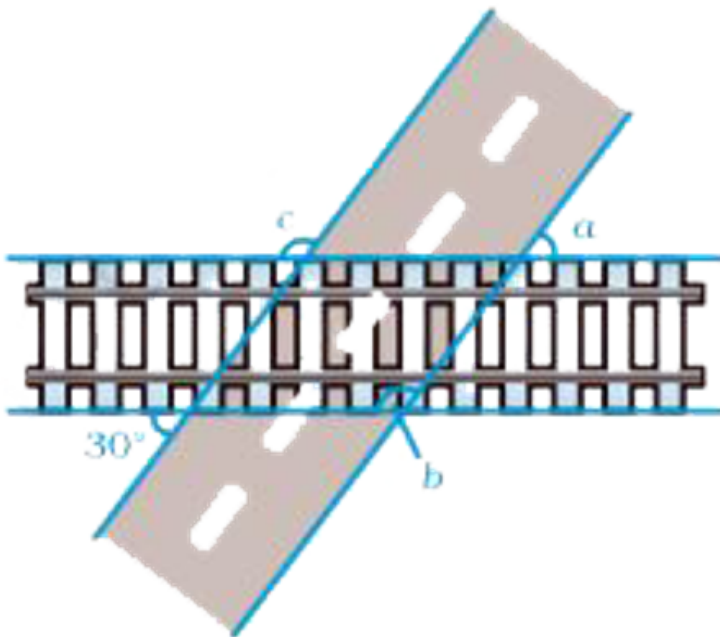
**83.** If the complement of an angle is  $62^\circ$ , then find its supplement.





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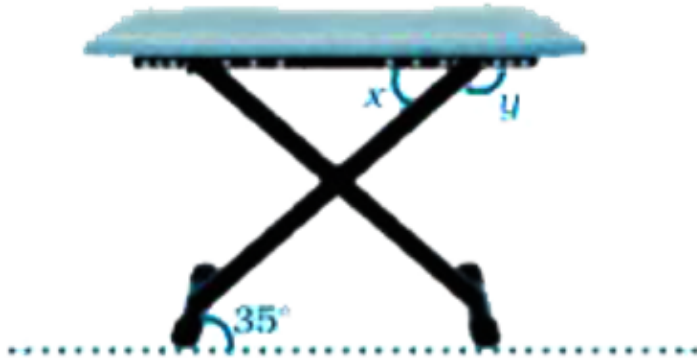
**84.** A road crosses a railway line at an angle of  $30^\circ$  as shown in Fig.5.45. Find the values of  $a$ ,  $b$  and  $c$ .



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**85.** The legs of a stool make an angle of  $35^\circ$  with the floor as shown in Fig. 5.46. Find the angles  $x$  and  $y$ .



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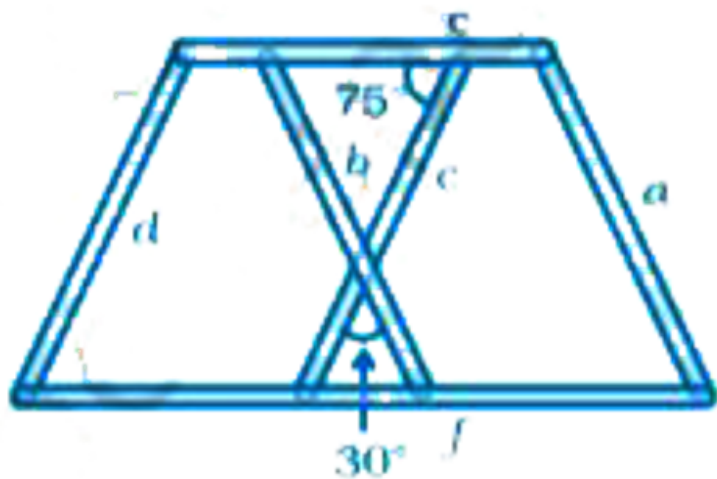
**86.** Iron rods a, b, c, d, e and f are making a design in a bridge as shown in Fig. 5.47, in which  $a \parallel b$ ,  $c \parallel d$ ,  $e \parallel f$ . Find the marked angles between

(i) b and c

(ii) d and e

(iii) d and f

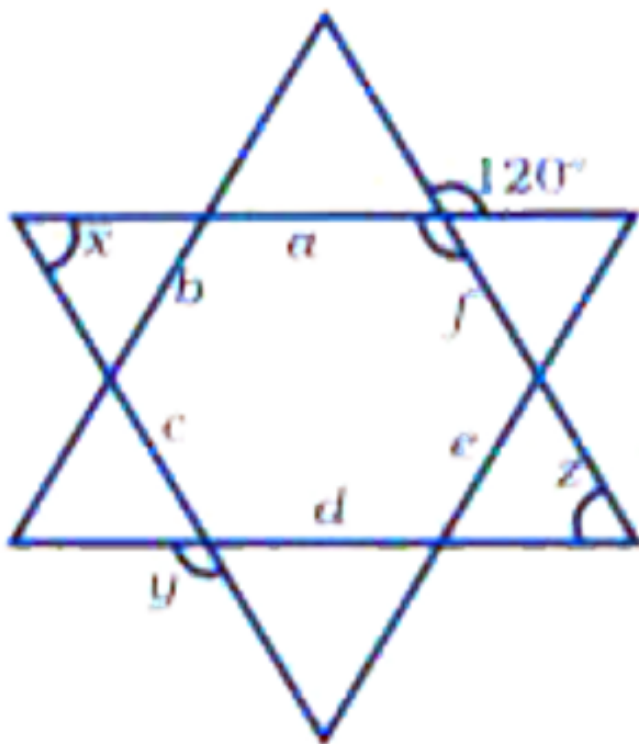
(iv) c and f



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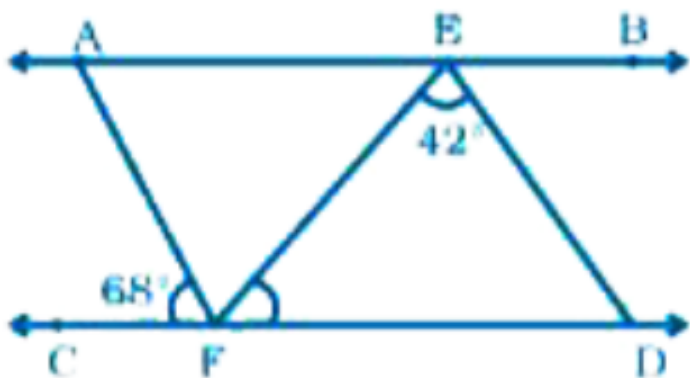
**87.** Amisha makes a star with the help of line segments  $a, b, c, d, e$  and  $f$ , in which  $a \parallel d, b \parallel e$  and  $c \parallel f$ . Chhaya marks an angle as  $120^\circ$  as shown in Fig. 5.48 and asks Amisha to find the

$\angle x$ ,  $\angle y$  and  $\angle z$ . Help Amisha in finding the angles.



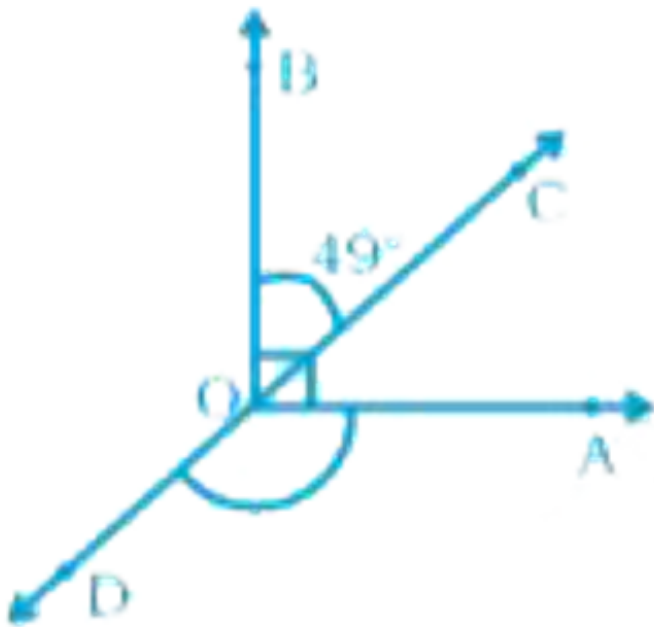
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88. In Fig. 5.49,  $AB \parallel CD$ ,  $AF \parallel ED$ ,  $\angle AFC = 68^\circ$  and  $\angle FED = 42^\circ$ . Find  $\angle EFD$ .



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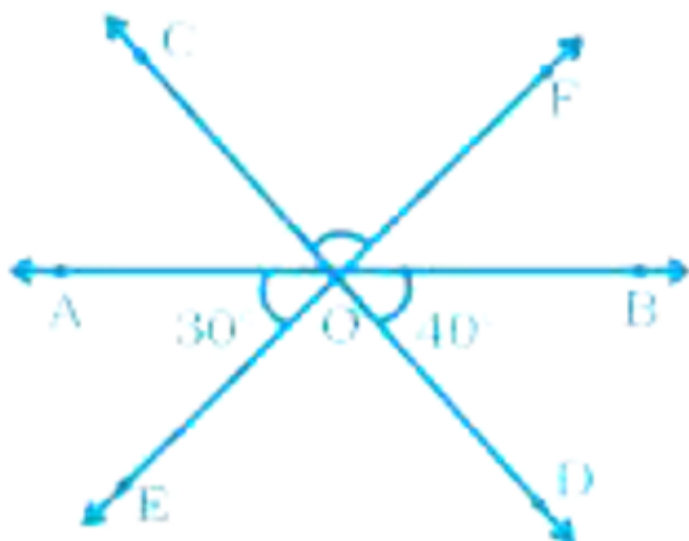
89. In Fig. 5.50, OB is perpendicular to OA and  $\angle BOC = 49^\circ$ . Find  $\angle AOD$ .



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90. Three lines AB, CD and EF intersect each other at O. If  $\angle AOE = 30^\circ$  and  $\angle DOB = 40^\circ$

(Fig. 5.51), find COF.



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91. Measures (in degrees) of two complementary angles are two consecutive

even integers. Find the angles.



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**92.** Two angles are making a linear pair. If one of them is one-third of the other, find the angles.



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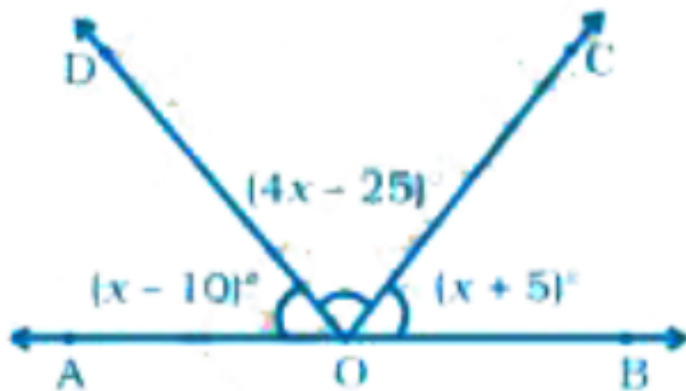
**93.** Measures (in degrees) of two supplementary angles are consecutive odd



integers. Find the angles.

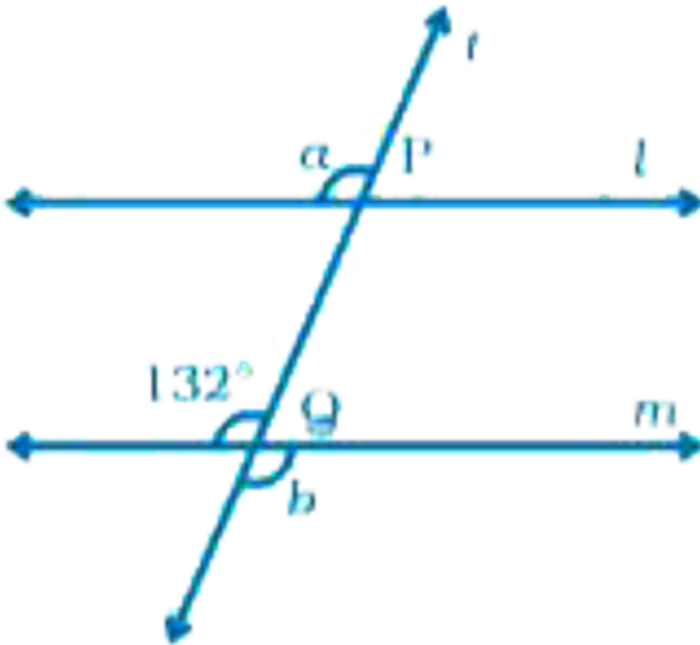
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**94.** In Fig. 5.53, find the value of  $\angle BOC$ , if points  $A$ ,  $O$  and  $B$  are collinear.



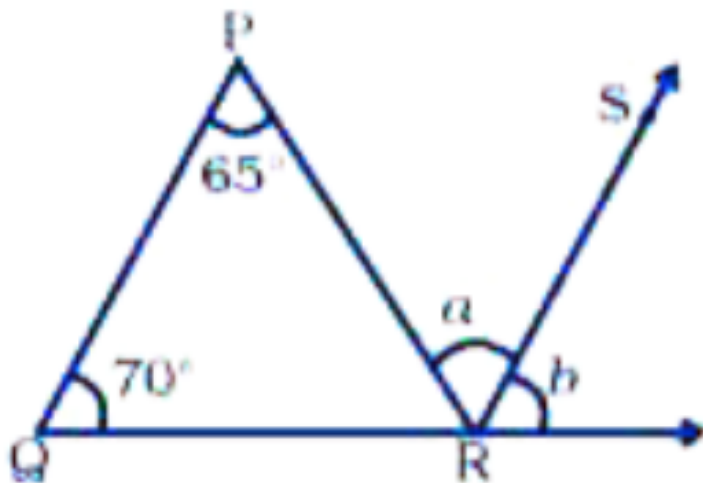
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95. In Fig. 5.55,  $l \parallel m$  and a line  $t$  intersects these lines at  $P$  and  $Q$ , respectively. Find the sum  $2a + b$ .



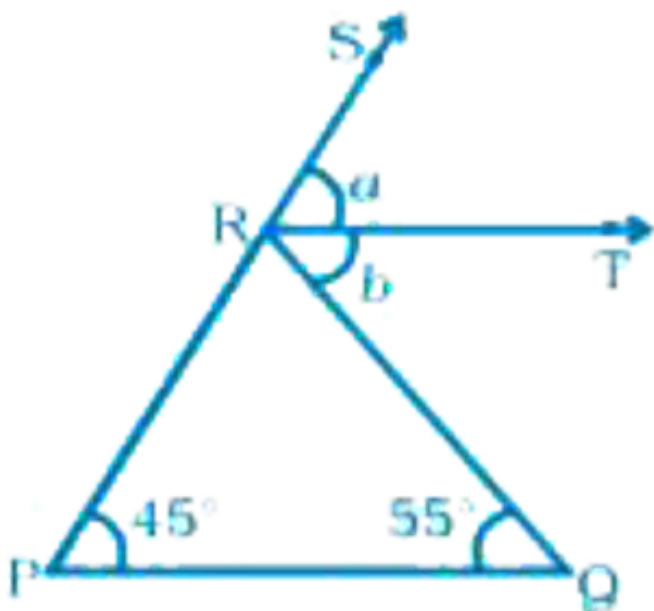
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96. In Fig. 5.56,  $QP \parallel RS$ . Find the values of  $a$  and  $b$ .



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97. In Fig. 5.57,  $PQ \parallel RT$ . Find the value of  $a + b$ .

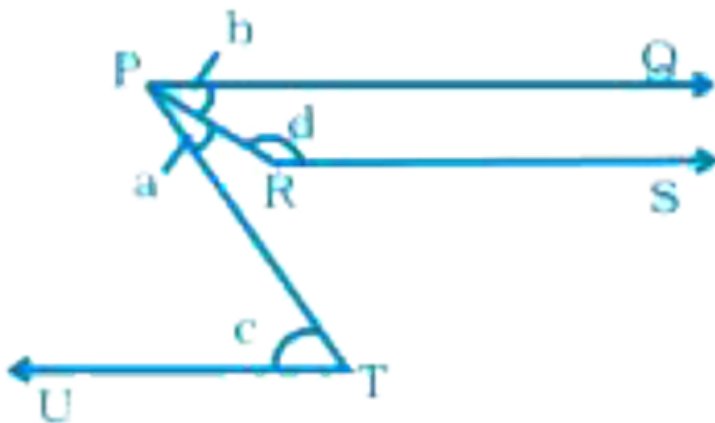


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98. In Figure,  $PQ$ ,  $RS$  and  $UT$  are parallel lines.

(i) If  $c = 57^\circ$  and  $a = \frac{c}{3}$ , find the value of  $d$ .

(ii) If  $c = 75^\circ$  and  $a = \frac{2}{5}c$ , find  $b$ .



A.  $d = 142^\circ$   $b = 45^\circ$

B.  $d = 140^\circ$   $b = 40^\circ$

C.  $d = 130^\circ$   $b = 30^\circ$

D.  $d = 150^\circ$   $b = 50^\circ$

**Answer: A**

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**99.** In Fig. 5.59,  $AB \parallel CD$ . Find the reflex  $\angle EFG$ .

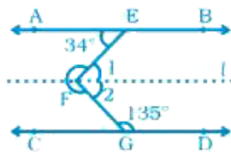


Fig. 5.59

**Look for a pattern** between the number of sides and the number of triangles.



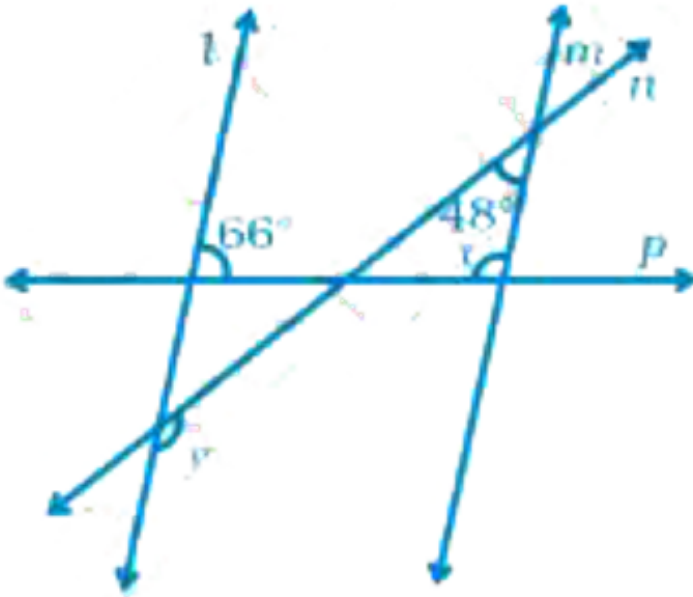
Heptagon  
7 sides  
5 triangles



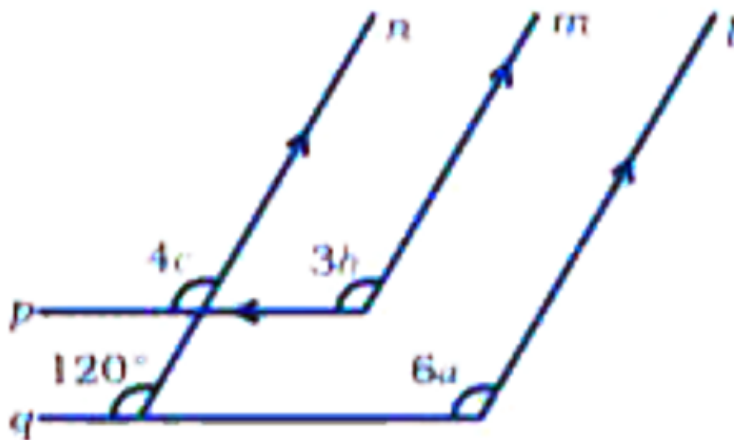
Hexagon  
6 sides  
4 triangles



100. In Fig. 5.60, two parallel lines  $l$  and  $m$  are cut by two transversals  $n$  and  $p$ . Find the values of  $x$  and  $y$ .



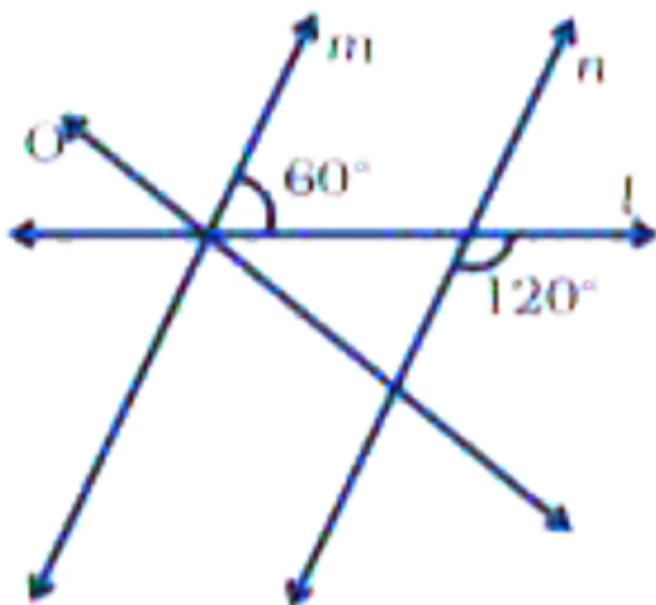
**101.** In Fig. 5.61,  $l$ ,  $m$  and  $n$  are parallel lines, and the lines  $p$  and  $q$  are also parallel. Find the values of  $a$ ,  $b$  and  $c$ .



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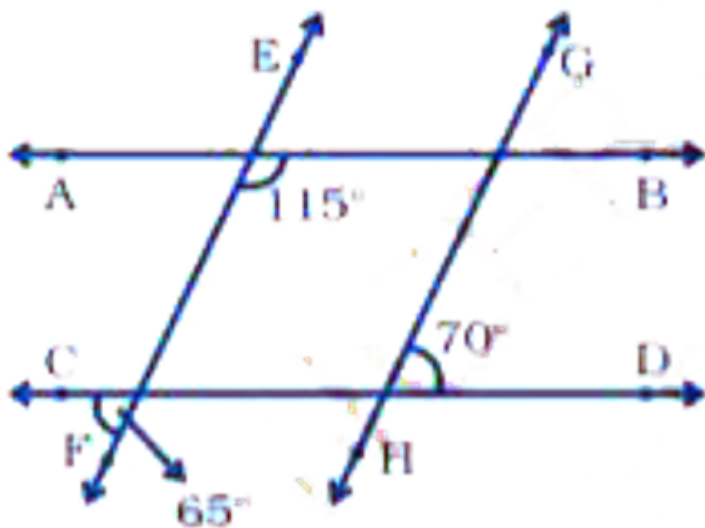
**102.** In Fig. 5.62, state which pair of lines are parallel. Give reason.



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**103.** In Fig. 5.63, examine whether the following pairs of lines are parallel or not:

- (i) EF and GH                      (ii) AB and CD

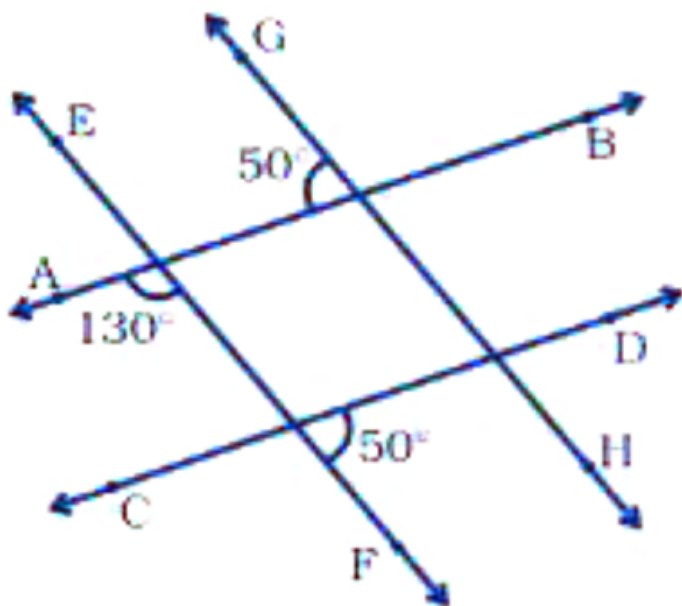


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**104.** In Fig. 5.65 , show that

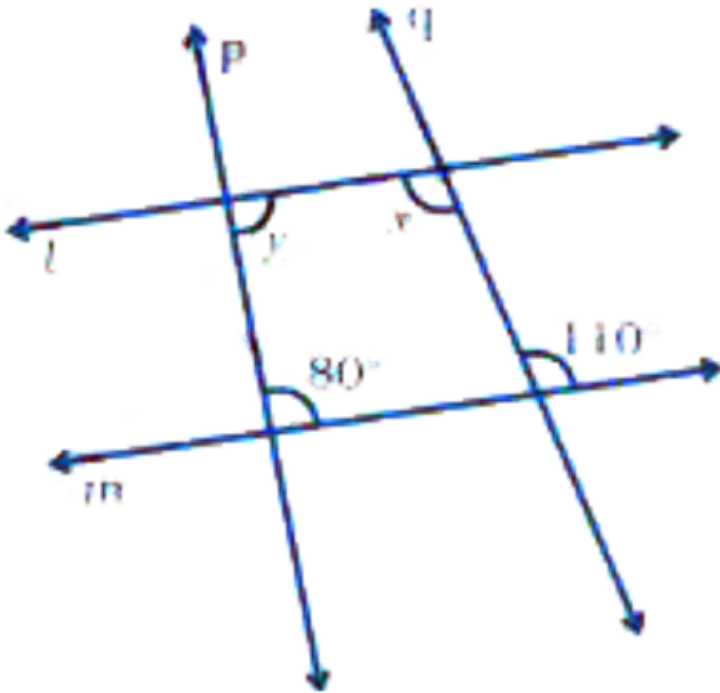
(i)  $AB \parallel CD$

(ii)  $EF \parallel GH$



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**105.** In Fig.5.66 , two parallel lines  $l$  and  $m$  are cut by two transversals  $p$  and  $q$  . Determine the values of  $x$  and  $y$  .



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## Exercise Fill In The Blanks

1. fill in the blanks to make the statements true.

If sum of measures of two angles is  $90^\circ$ , then the angles are \_\_\_\_\_.



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2. fill in the blanks to make the statements true.

If the sum of measures of two angles is  $180^\circ$ , then they are \_\_\_\_\_.



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3. fill in the blanks to make the statements true.

A transversal intersects two or more than two lines at \_\_\_\_\_ points.



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