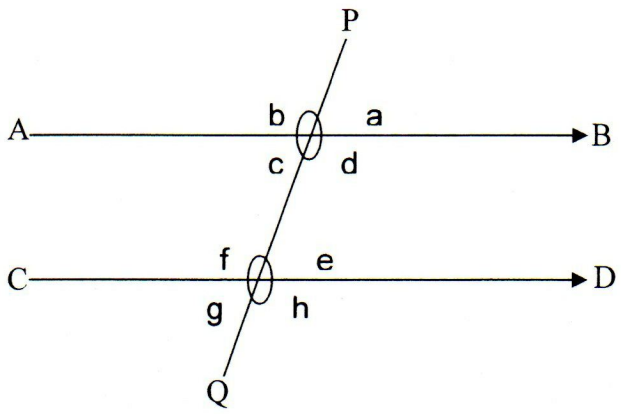
Parallel lines

Parallel lines and pairs of angles.



Here in the figure AB is parallel to CD, where PQ is the transversal which intersects the parallel lines AB and CD.

In the figure there are 8 angles are formed. Such as angle 'a', 'b', 'c','d', 'e', 'f', 'g' and 'h'.

Remember these properties.

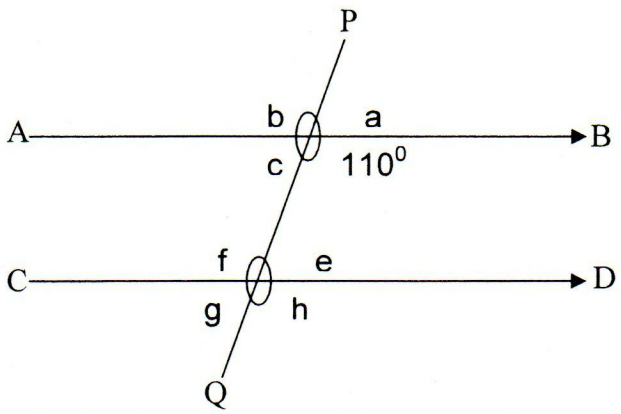
Supplementary angles sum 180^0.
Vertically opposite angles are always equal.
Corresponding angles are always equal.
Alternate angles are always equal.
Co-interior angles sum 180.

There are	Example	Equation
8 pair of supplementary angles.	'a' and 'd'	$a+ d= 180^0$
4 pair of vertically opposite angles.	'b' and 'd'	$b = d$
4 pair of corresponding angles.	'h' and 'd'	$h = d$
2 pair of alternate angles.	'f' and 'd'	$f = d$
2 pair of co-interior angles.	'e' and 'd'	$e + d = 180$

i) Identify the relation of the pair of angles, 1 unknown and 1 known.
ii) Remember the properties of pair of angles.
iii) Make equation and solve.

We can find the unknown angles from the figure if 1 angle is known.

Worked out example.
Find the unknown angles from the given figures.



Here in the figure 1 angle is known, with the help of the known angle we can find all the unknown angles.

Known angle 110^0. with the help of the known angle we can find any unknown angles.
Q 1. Find the value of angle f.

Identify the relationship between the known and unknown angle.

Angle f and 110 degree are a pair of alternate angles.

Remember the properties of alternate angles, Alternate angles are always equal.

Make equation and solve.

f = 110.

Q.2 Find the value of the angle 'e'.

Angle e and 110 degree are co-interior angles , and the pair of interior angles sum 180 degree.

Writing the equation.

Angle e and 110 degree are a pair of co-interior angles.

Remember the properties of co-interior angles. Co-interior sum angles is 180 degree.

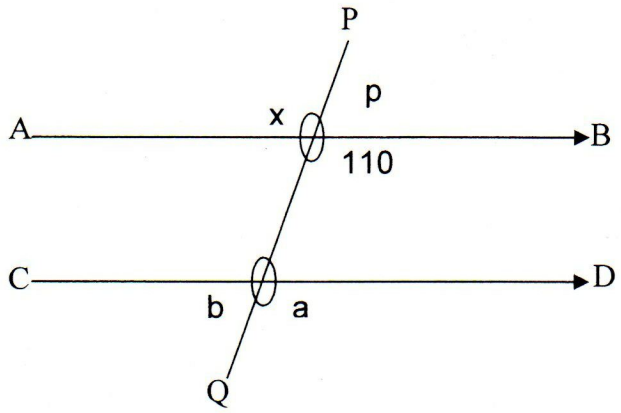
Make equation and solve.

e + 110 = 180
e = 180 – 110
e = 70^0

Exercise

Find the size of the unknown angles from the given figure.

1)



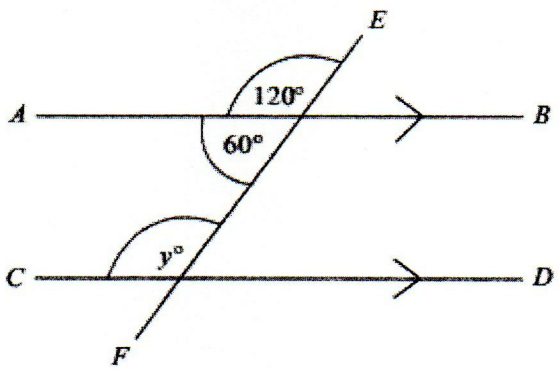
x= _____

p= _____

a= _____

b= _____

2)



AB is parallel to *CD*.
EF is a straight line.
(i) Write down the value of *y*.

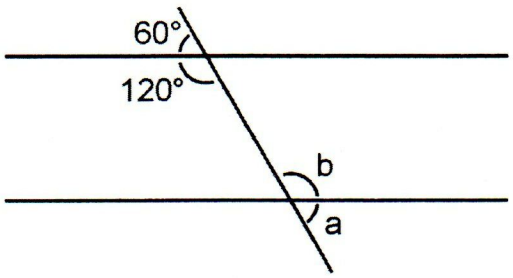
y = ...

(ii) Give a reason for your answer.

.....

Find the size of the unknown angles.

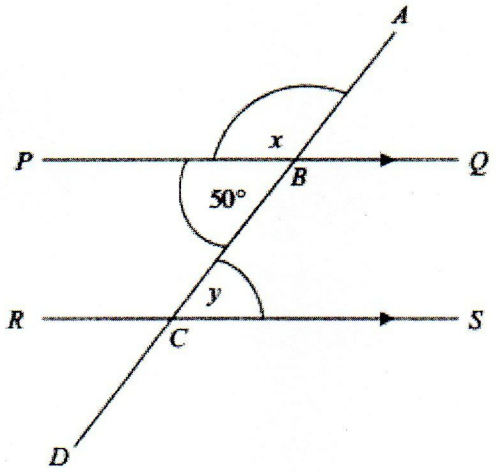
3)



a= _____

b= _____

4)



ABCD is a straight line.
PQ is parallel to *RS*.
(a) (i) Write down the size of the angle marked *x*.

.....°

(ii) Give a reason for your answer.

.....
.....

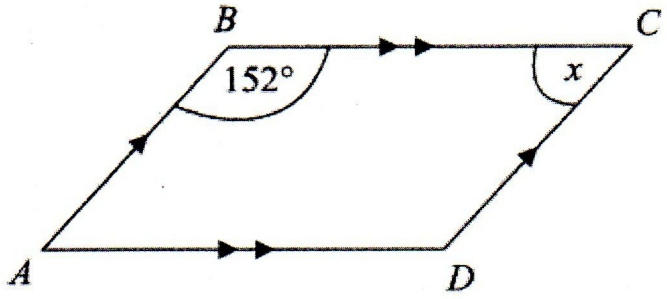
(b) (i) Write down the size of the angle marked *y*.

.....°

(ii) Give a reason for your answer.

.....
.....

5)



ABCD is a parallelogram.
Work out the size of the angle marked *x*.

x = ... °

6)

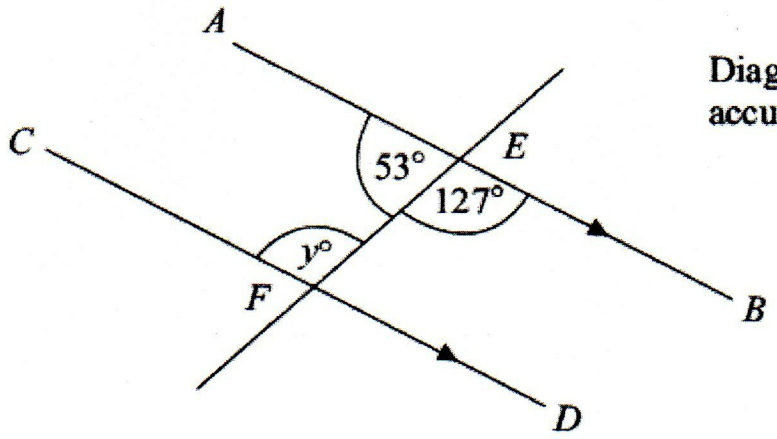


Diagram NOT accurately drawn

AB is parallel to *CD*.
Angle *BEF* = 127°
(i) Write down the value of *y*.

y = ...

(ii) Give a reason for your answer.

.....