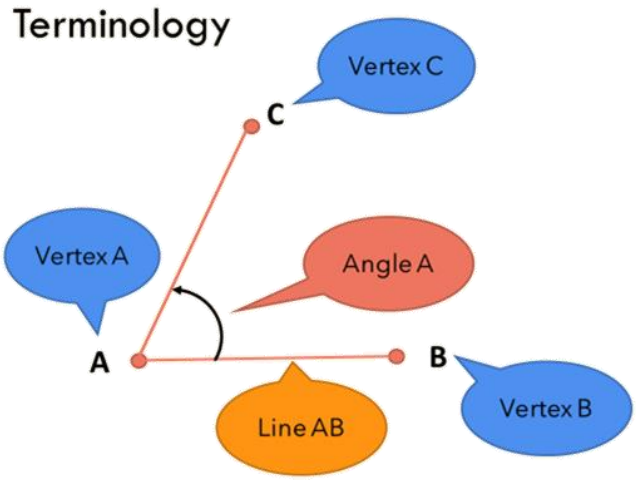
GRADE 8

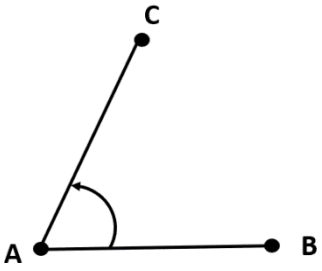
Geometry of straight lines



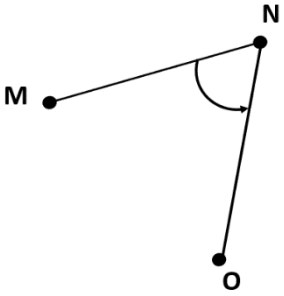
Naming angles

Example 1

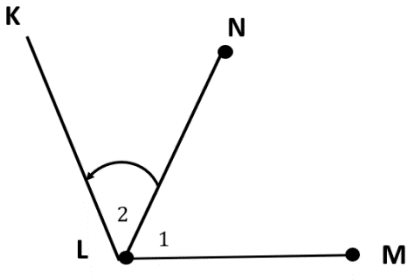
1.1)

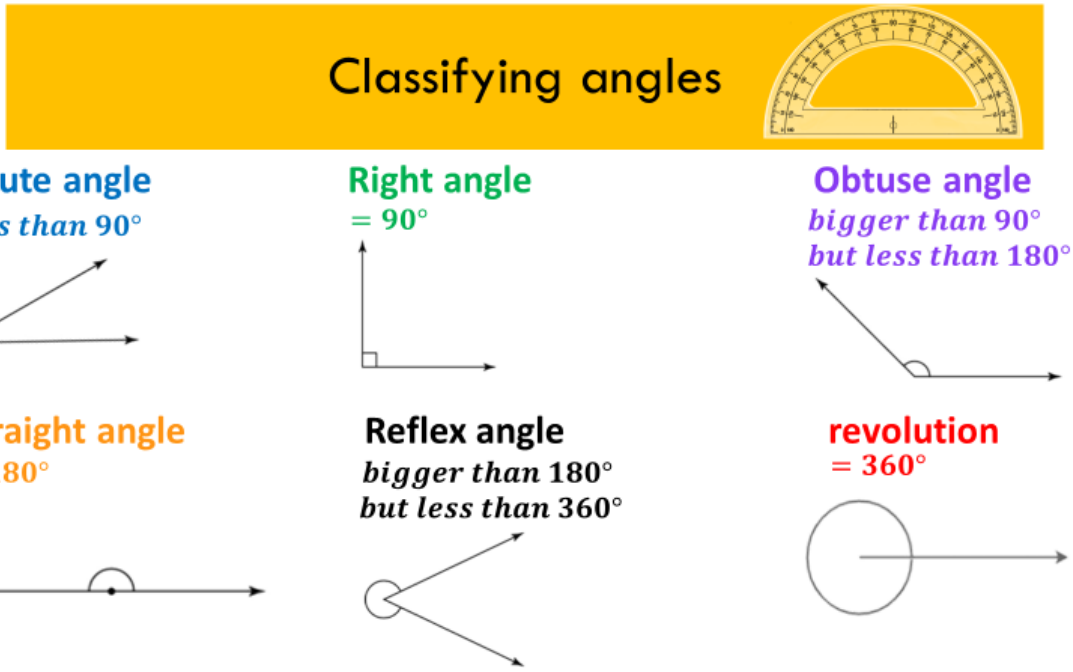


1.2)



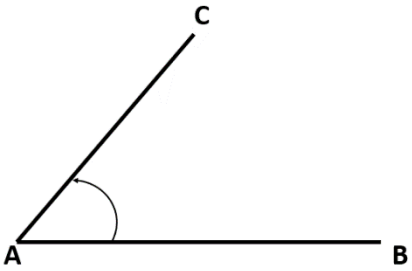
1.3)





Example 2

2.1)



2.1.1) What is the size of $B\hat{A}C$?

2.1.2) What type of angle is $B\hat{A}C$?

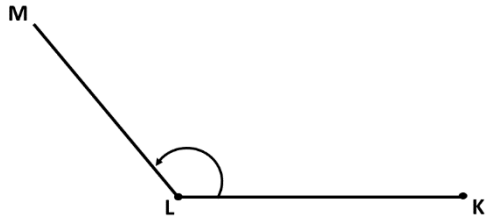
2.2)



2.2.1) What is the size of $D\hat{E}F$?

2.2.2) What type of angle is $D\hat{E}F$?

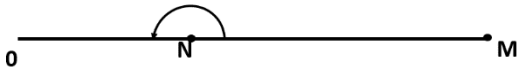
2.3)



2.3.1) What is the size of $K\hat{L}M$?

2.3.2) What type of angle is $K\hat{L}M$?

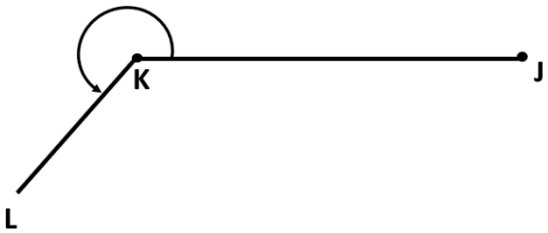
2.4)



2.4.1) What is the size of $M\hat{N}O$?

2.4.2) What type of angle is $M\hat{N}O$?

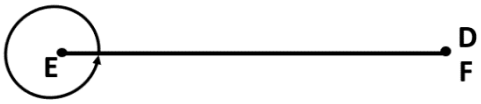
2.5)



2.5.1) What is the size of $J\hat{K}L$?

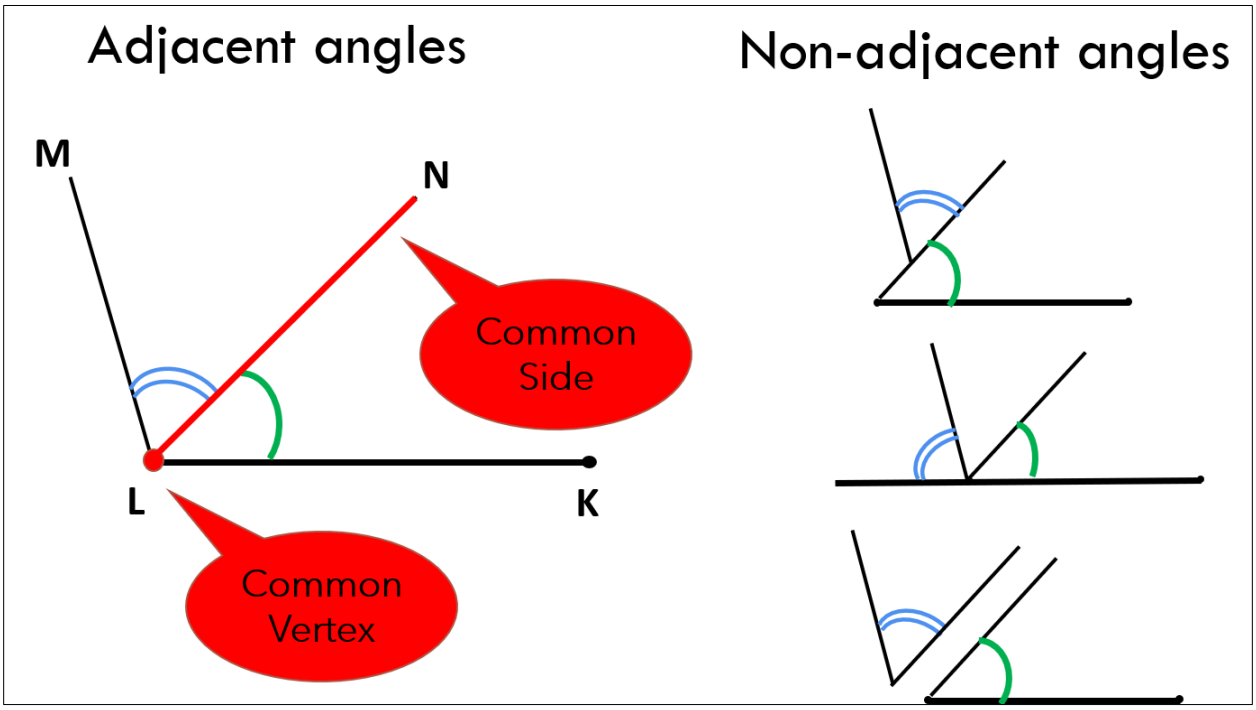
2.5.2) What type of angle is $J\hat{K}L$?

2.6)



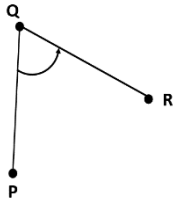
2.6.1) What is the size of $D\hat{E}F$?

2.6.2) What type of angle is $D\hat{E}F$?



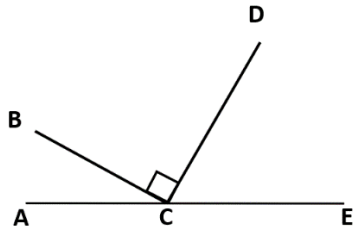
EXERCISE 1

1) Can you name:



a) a vertex?
b) a line?
c) an angle?

2) Can you name:



a) an acute angle?
b) a right angle?
c) an obtuse angle?
d) a pair of adjacent angles?
e) a pair of non-adjacent angles?

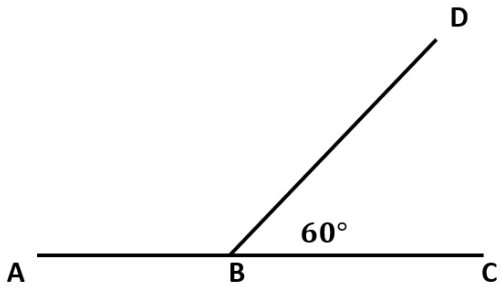
Angles on a straight line

$(\angle^s$ *on str line*$)$

Do investigation 1

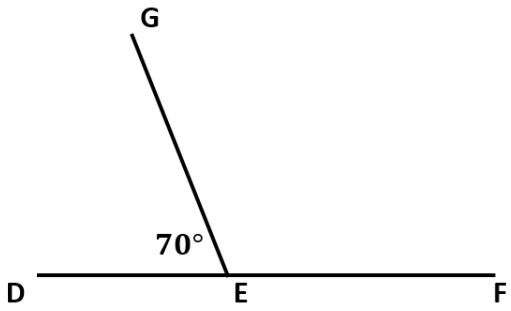
Example 3

3.1) Calculate the size of $A\hat{B}D$.



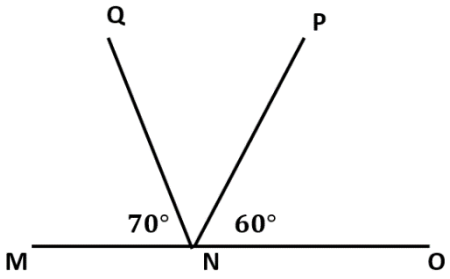
Statement	Reason

3.2) Calculate the size of $G\hat{E}F$.



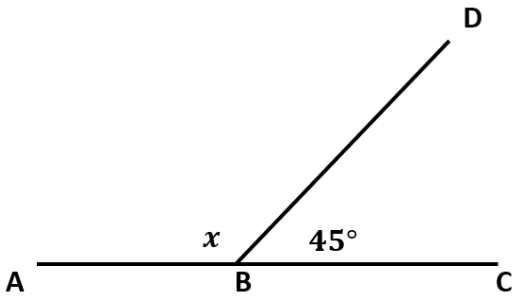
Statement	Reason

3.3) Calculate the size of $Q\hat{N}P$.



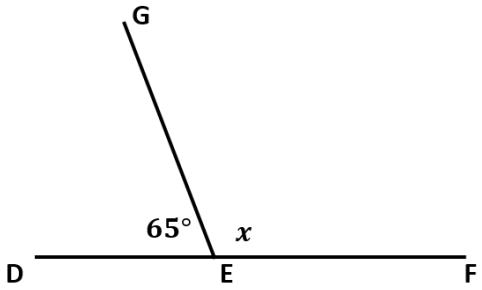
Statement	Reason

3.4) Calculate the size of x.



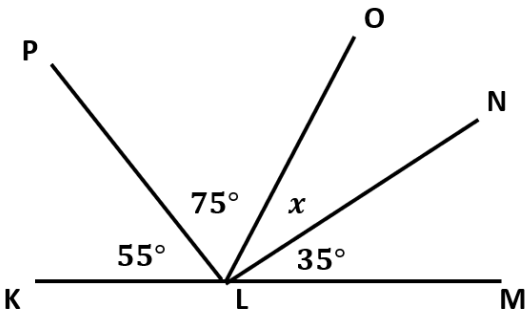
Statement	Reason

3.5) Calculate the size of x.



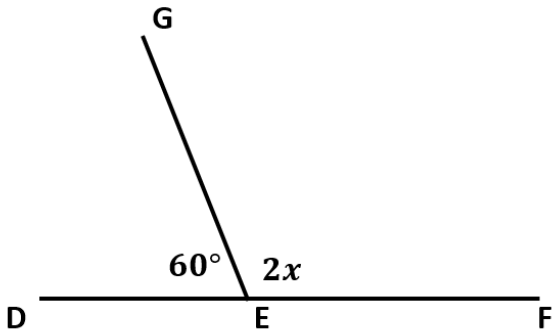
Statement	Reason

3.6) Calculate the size of x.



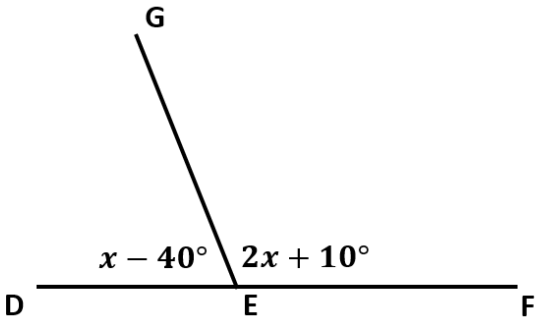
Statement	Reason

3.7) Calculate the size of x.

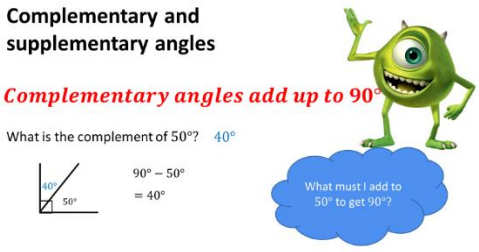


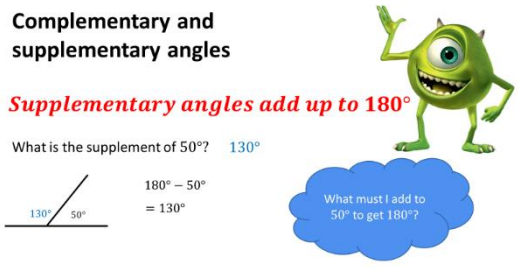
Statement	Reason

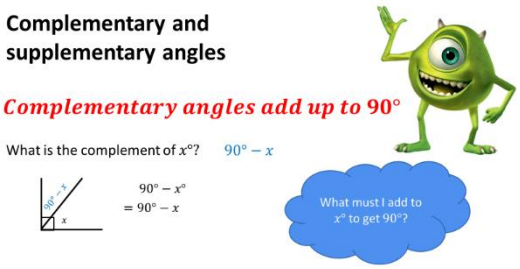
3.8) Calculate the size of x.

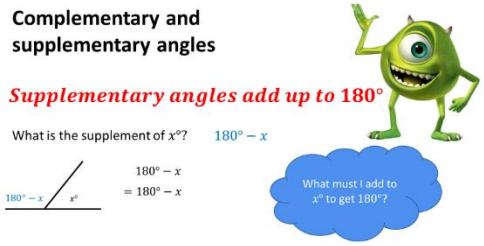


Statement	Reason





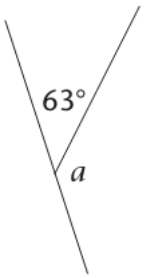




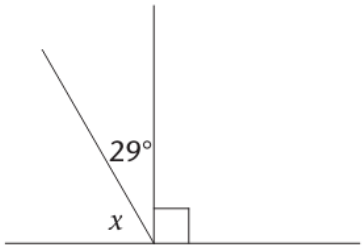
EXERCISE 2 (Sasol Inzalo)

Calculate the unknown in each of the following. Remember to provide reasons.

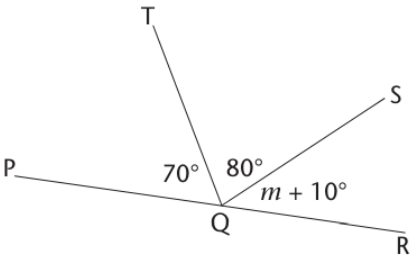
1)



2)



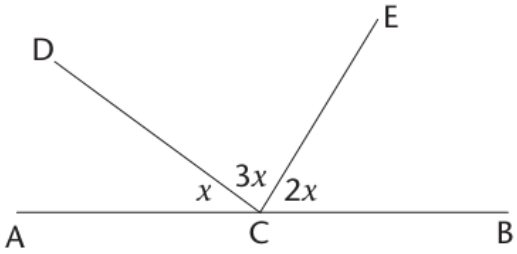
3)



3.1) Calculate the value of m.

3.2) Determine the value of $\mathrm{S\hat{Q}R}$

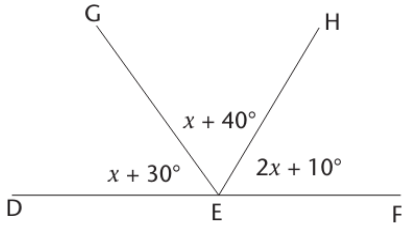
4)



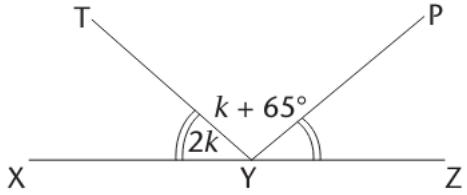
4.1) Calculate the value of x.

4.2) Determine the value of $\mathrm{D\hat{C}E}$.

5) Calculate the value of x.



6) Calculate the value of k. $\mathrm{T\hat{Y}X} = \mathrm{P\hat{Y}Z}$

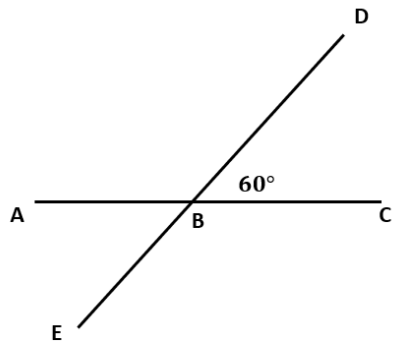


Vertically opposite angles ($\boldsymbol{vert\ opp\ \angle^s =}$)
and
Angles around a point ($\boldsymbol{\angle^s\ around\ a\ pt}$)

Do investigation 2

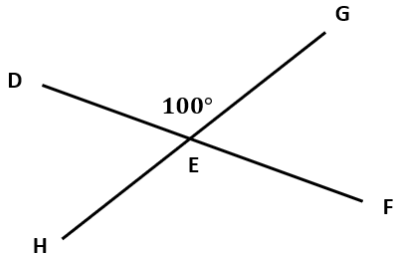
Example 4

4.1) Calculate the size of A$\hat{B}$E.



Statement	Reason

4.2)

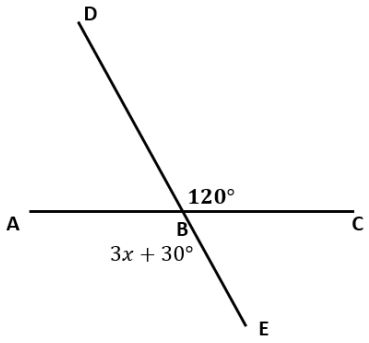


Statement	Reason

a) Calculate the size of H$\hat{E}$F.

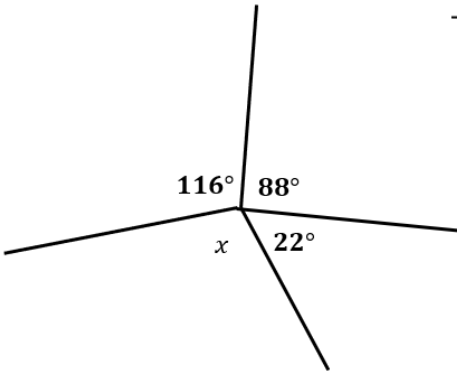
b) Calculate the size of H$\hat{E}$D.

4.3) Calculate the size of x.



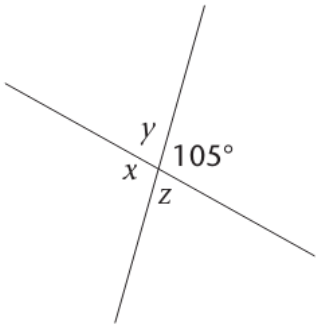
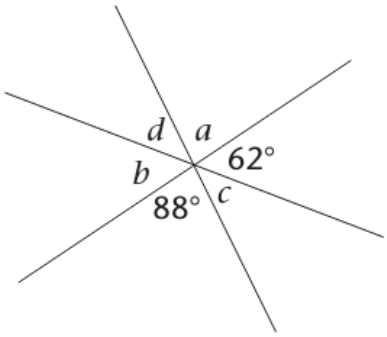
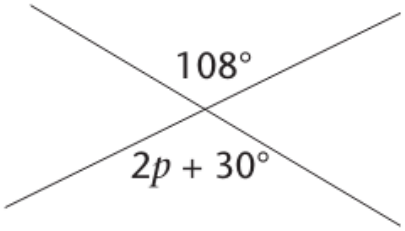
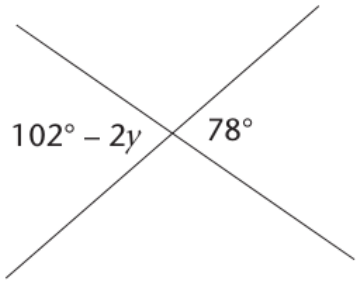
Statement	Reason

4.4) Calculate the size of x.



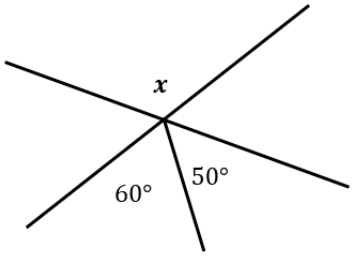
Statement	Reason

EXERCISE 3 (Sasol Inzalo)

1) Calculate the values of x, y and z. 	2) Calculate the values of a, b, c and d. 
3) Calculate the values of p. 	4) Calculate the values of y. 

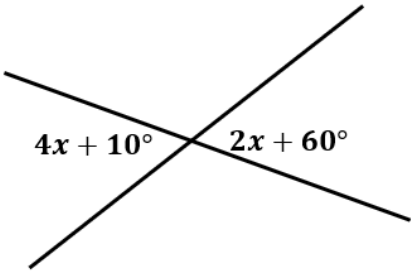
Example 5

5.1) Calculate the size of x.



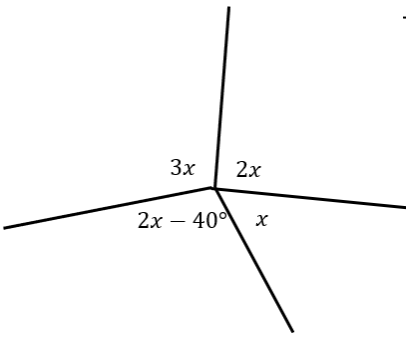
Statement	Reason

5.2) Calculate the size of x.



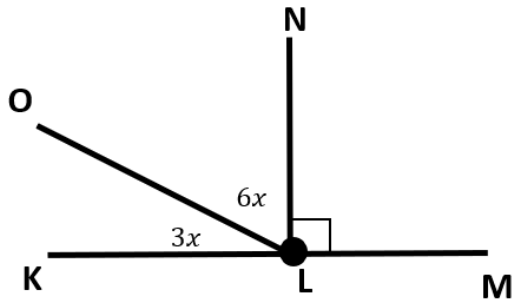
Statement	Reason

5.3) Calculate the size of x



Statement	Reason

5.4) Calculate the size of x

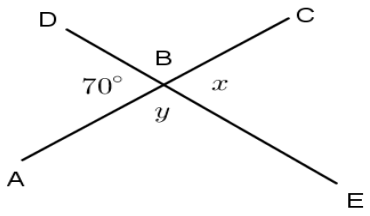


Statement	Reason

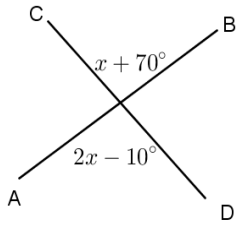
EXERCISE 4

Determine the value of x and y in each of the following cases. Remember to provide reasons for your answers.

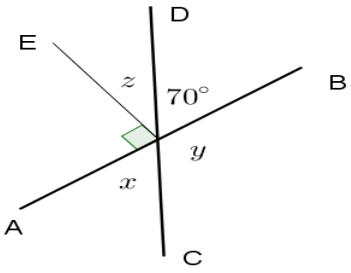
1)



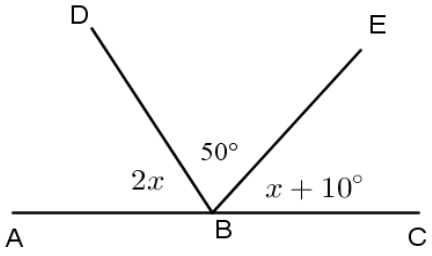
2)



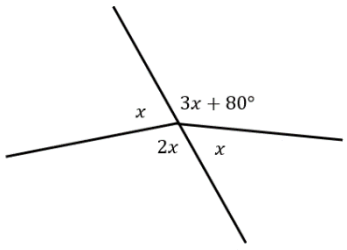
3)



4)

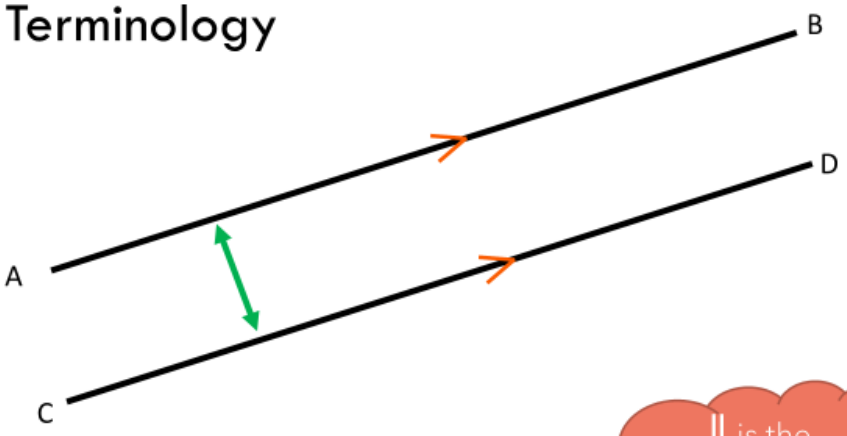


5)



Parallel lines and FUN angles

Terminology







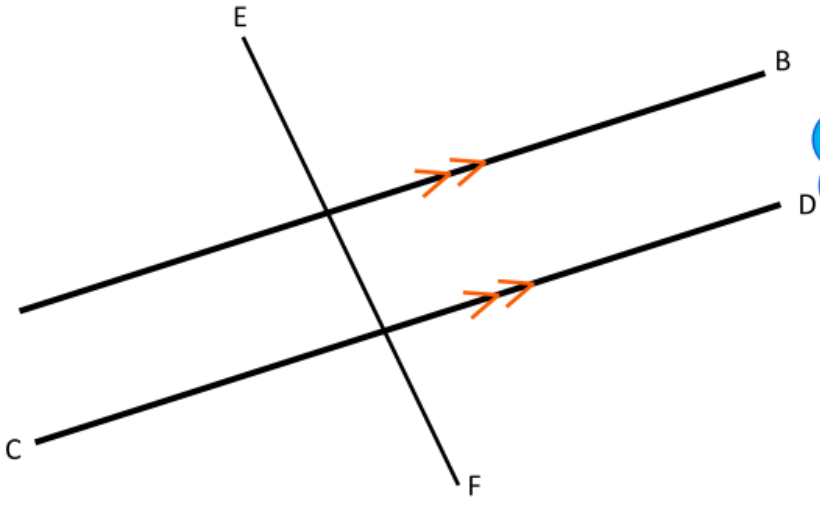
|| is the mathematic symbol we use for parallel lines

We say line AB is parallel to line CD

We write it is as $AB \parallel CD$

More information about parallel lines

When a third line, called a transversal, crosses these parallel lines, it creates angles.



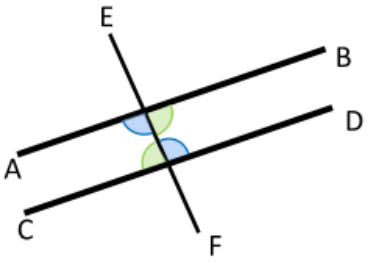
EF is called transversal



Angles formed by a transversal

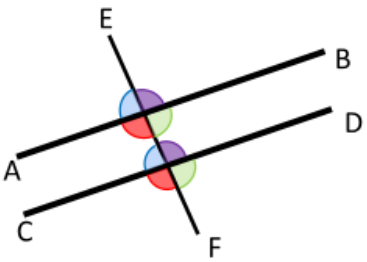
Alternate angles

Alternate angles are angles formed on the inner side of the two lines but on the opposite side of the transversal



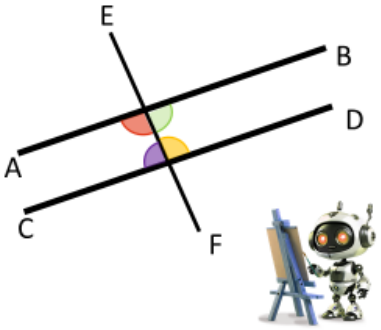
Corresponding angles

Corresponding angles are angles formed both either on the top or bottom of the two lines but on the same side of the transversal line.



Co interior angles

Co interior angles are angles that lie between two lines and are on the same side of the transversal.

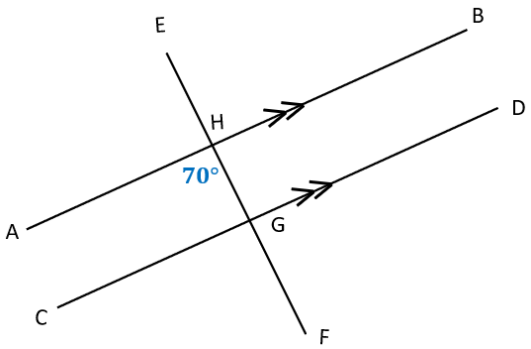


Alternate angles

Do investigation 3

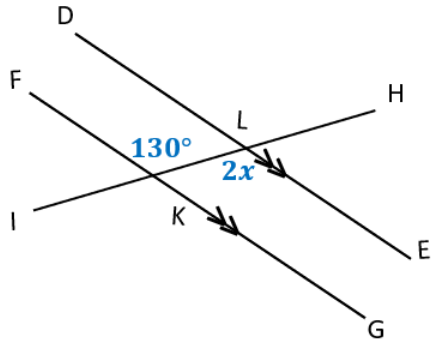
Example 6

6.1) Determine the size of $H\widehat{G}D$.



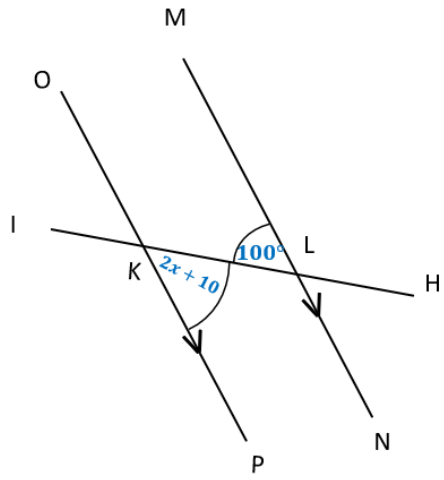
Statement	Reason

6.2) Determine the size of x.



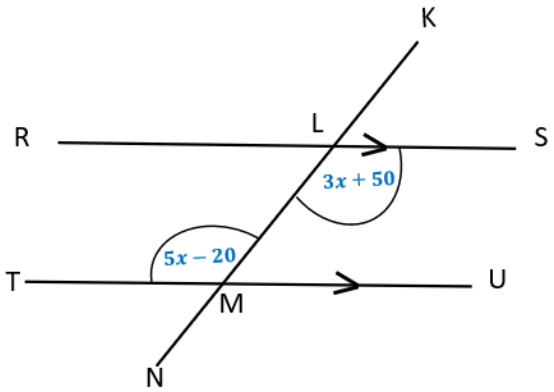
Statement	Reason

6.3) Determine the size of x.



Statement	Reason

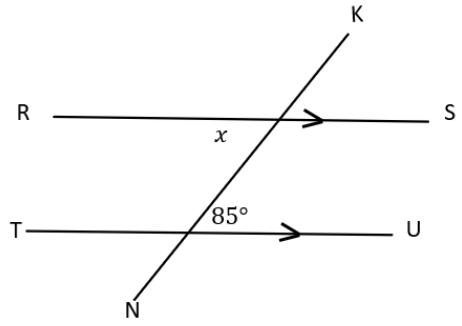
6.4) Determine the size of x.



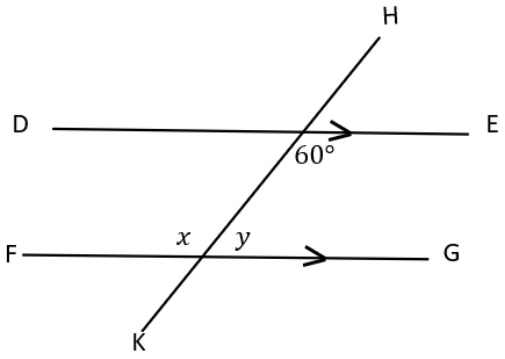
Statement	Reason

EXERCISE 5

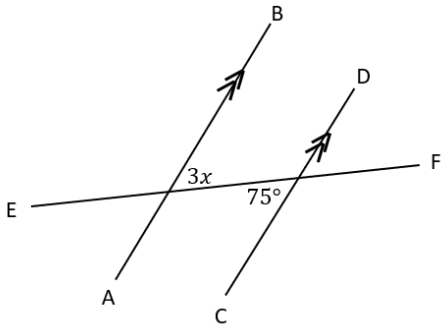
1) Determine the value of x.



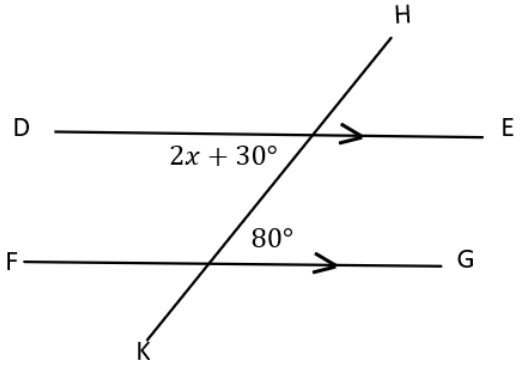
2) Determine the value of x and y.



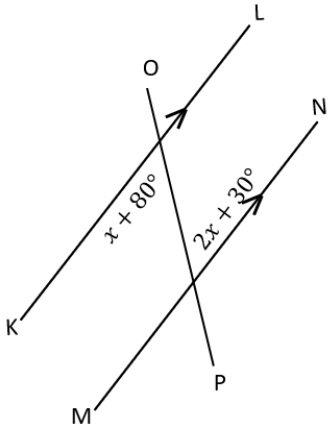
3) Determine the value of x.



4) Determine the value of x and y.



5) Determine the value of x.

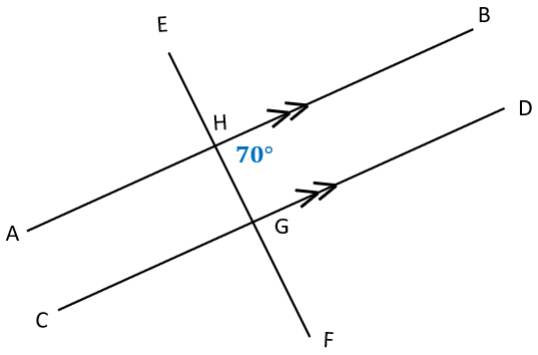


Corresponding angles

Do investigation 4

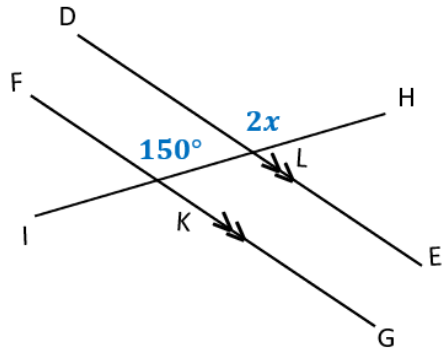
Example 7

7.1) Determine the size of $D\widehat{G}F$.



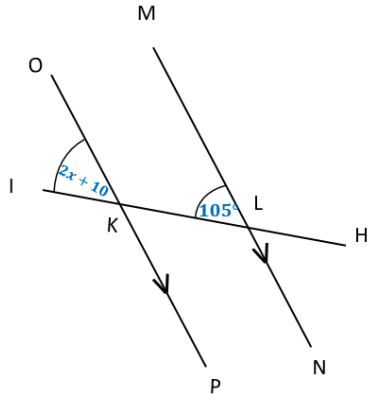
Statement	Reason

7.2) Determine the size of x.



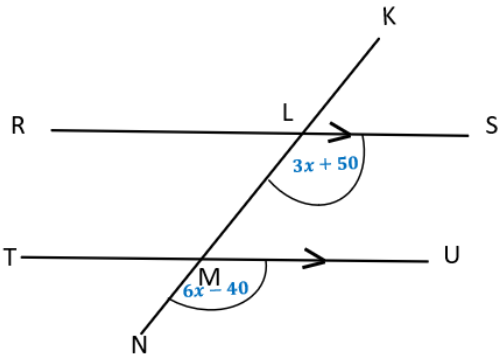
Statement	Reason

7.3) Determine the size of x.



Statement	Reason

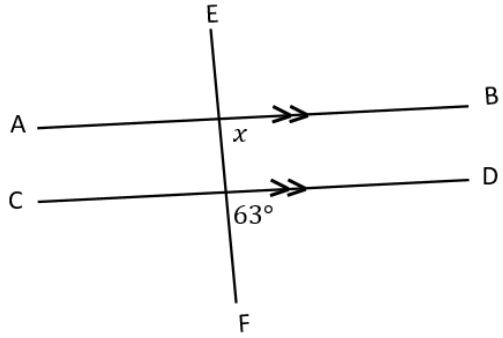
7.4) Determine the size of x.



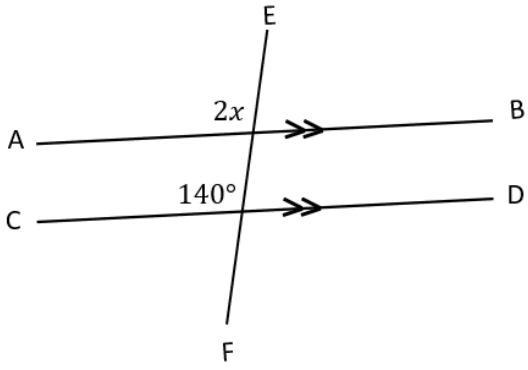
Statement	Reason

EXERCISE 6

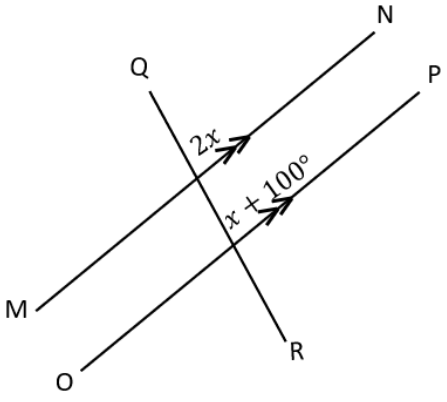
1) Determine the value of x.



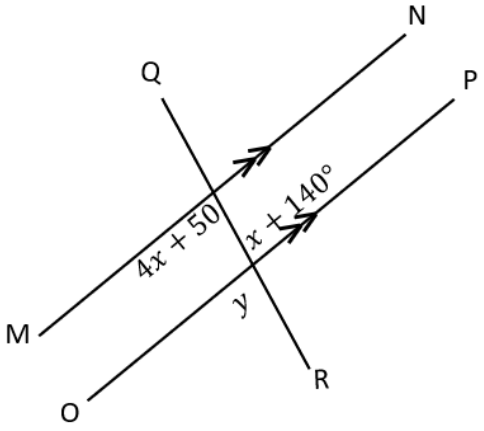
2) Determine the value of x.



3) Determine the value of x.



4) Determine the value of x and y.

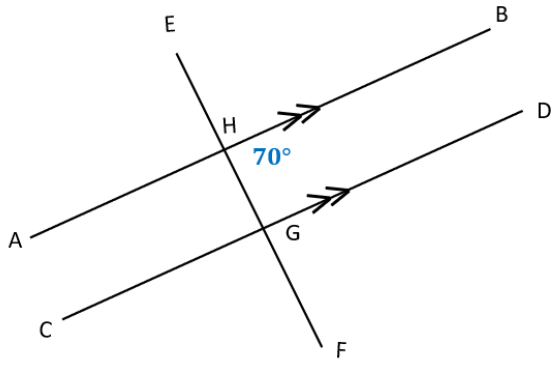


Co-interior angles

Do investigation 5

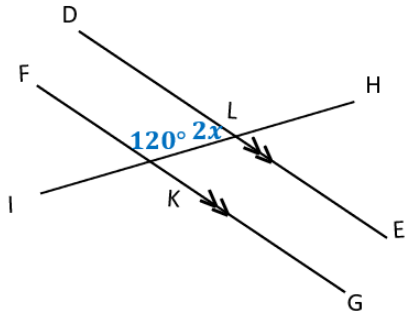
Example 8

8.1) Determine the size of $D\widehat{G}H$



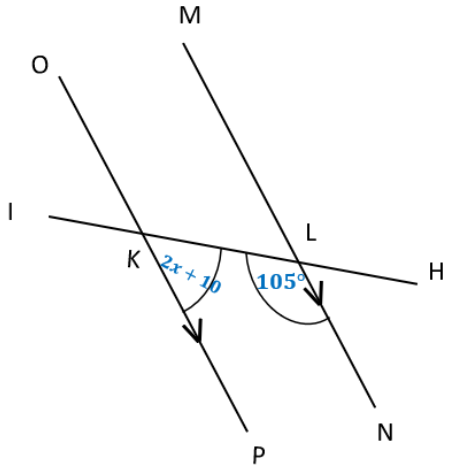
Statement	Reason

8.2) Determine the size of x.



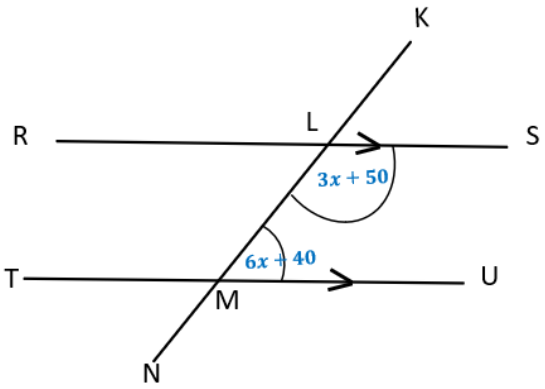
Statement	Reason

8.3) Determine the size of x.



Statement	Reason

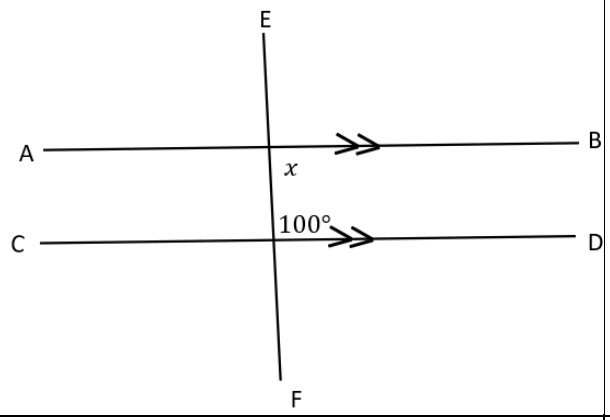
8.4) Determine the size of x.



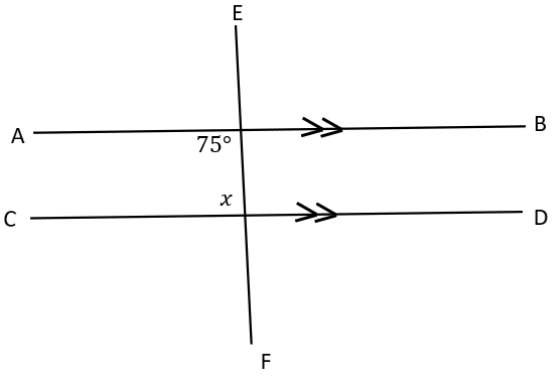
Statement	Reason

EXERCISE 7

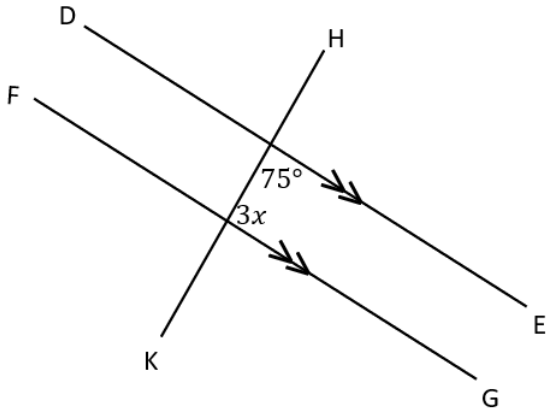
1) Determine the value of x.



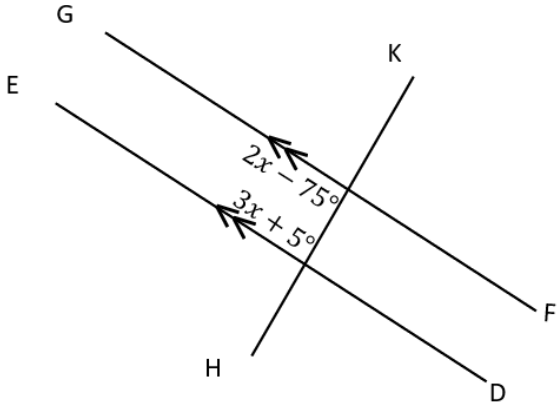
2) Determine the value of x.



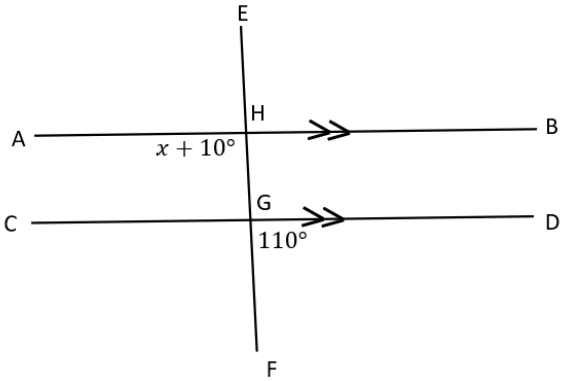
3) Determine the value of x.



4) Determine the value of x.



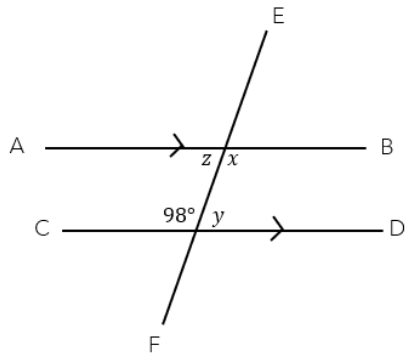
5) Determine the value of x.



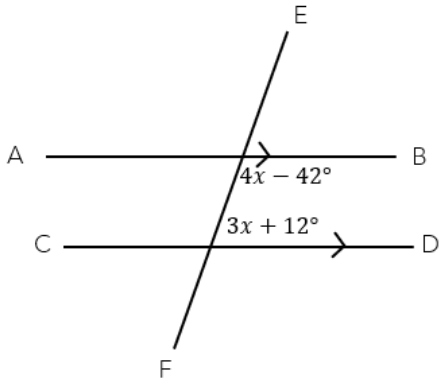
EXERCISE 8

Determine the value of the unknown if AB ∥ CD. Give reasons.

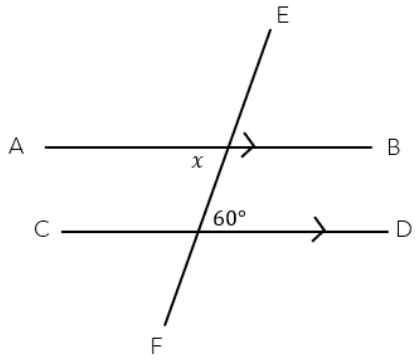
1.1)



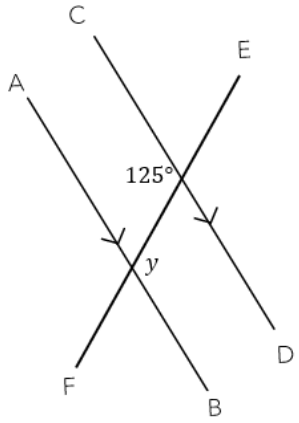
1.2)



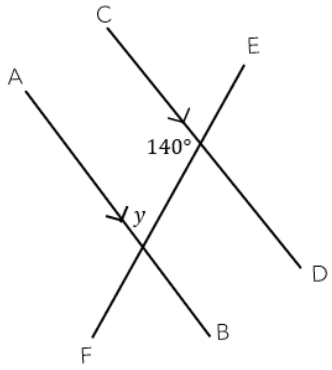
1.3)



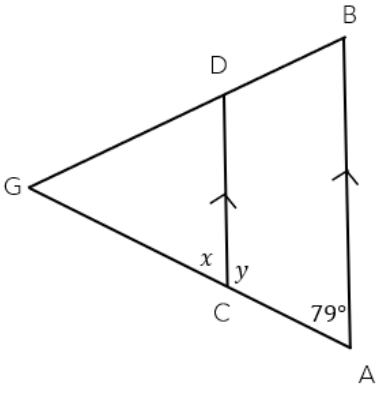
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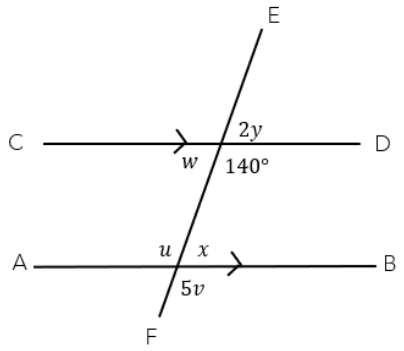
1.5)



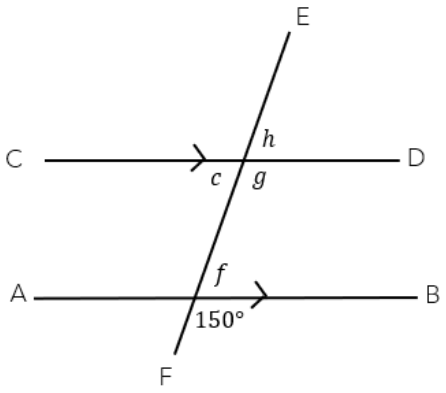
1.6)



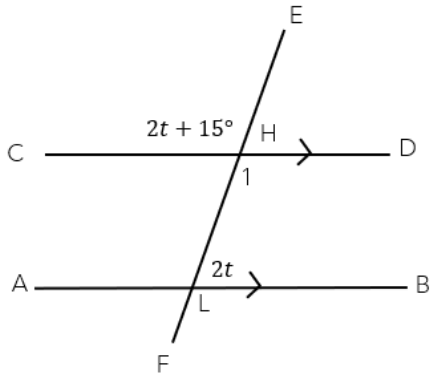
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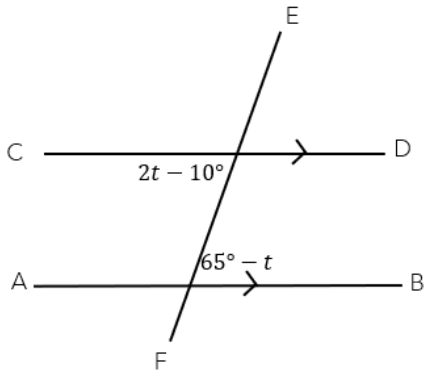
1.8)



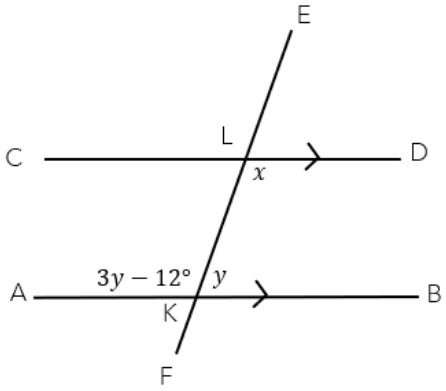
1.9)



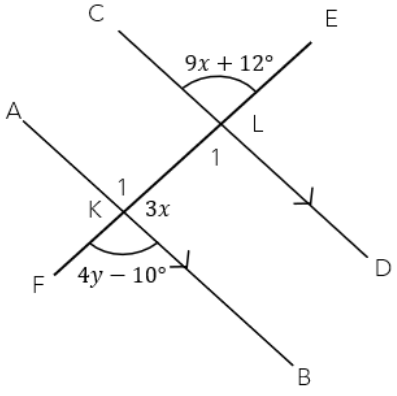
1.10)



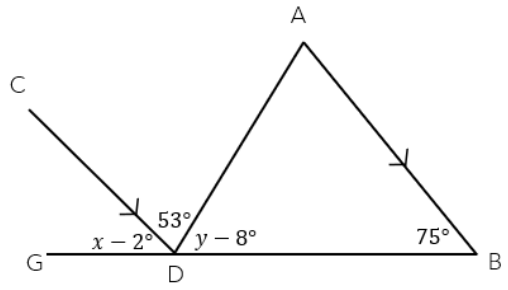
1.11)



1.12)



1.13)



1.14)

