DAY-3
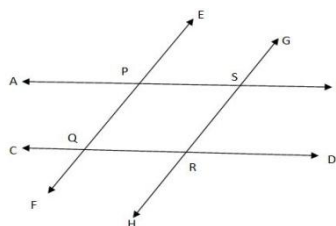
1. In the figure, $AB \parallel CD$ and $EF \parallel GH$.

   a) Write down the name of the quadrilateral PQRS with reasons.
   b) Taking four angles from the figure, find their supplementary angles and alternate angles.
   c) Prove that, $< APE =< DRH$.

Solution-

a). As PQRS is a quadrilateral with four sides where opposite sides are parallel to each other .then PQRS can be called parallelogram.

b). In the figure four angles and their supplementary angles are determined

i. ∠APE and its supplementary angles ∠EPB

ii. . ∠ASG and its supplementary angles ∠BSG

iii. . ∠CQF and its supplementary angles ∠DQF

iv. . ∠DRH and its supplementary angles ∠HRC

As two angles are supplementary when they add up to 180 degrees

c). We know that, in a parallelogram the opposite angles are equal
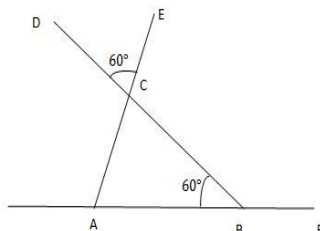∴ $\angle QPS = \angle QRS$…………….(i)

And$\angle PQR = \angle PSR$ … … … … … … (ii)

We also know that $\angle QPS = \angle APE$ and $\angle QRS = \angle DRH$ … … … … …. (iii)

$$[\because Vertically\ angles]$$

From (i) and (ii) We can write $\angle APE = \angle DRH (Proved)$

2. In the adjacent diagram

a) What is the supplementary angle of $< ABC$?
b) What is the measurement of $< ACB$ and why ?
c) Prove That $< DCE + < ECB = 180°$.

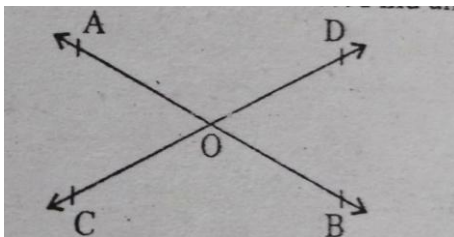# SOLUTION 2 : (TRY YOURS SELF)

3. The lines AB and CD intersect at the point O .

a). Based on the above information, draw a figure.

b). Prove that, the produced vertically opposite angles are equal to each other.

c). If $\angle AOC = (4x - 16)$ and $\angle BOC = 2(x + 20)$, determine the value of x

Solution

a.

b). As per figure drawn in answer a angles$\angle$ AOD and $\angle$BOC are vertical angles as well as $\angle$AOC and $\angle$BOD

We have to prove that $\angle$AOC=$\angle$BOD and $\angle$=$\angle$AOD

Proof:

CD intersects with the line OA at the poin O

∴ $\angle$AOD+$\angle$AOC= 1 straight line …………..(i)

Again   AB intersects with the line OD at the poin O

∴ $\angle$AOD+$\angle$BOD= 1 straight line …………..(ii)

From (i) and (ii) we get,

$\angle$AOD+$\angle$AOC=$\angle$AOD+$\angle$BOD

Or, $\angle$AOC=$\angle$AOD+$\angle$BOD $-\angle$AOD

Therefore,$\angle AOC = \angle BOD$

Similarly, $\angle BOC = \angle AOD$ (Proved)

c. Given that, $\angle AOC = (4x - 16)$ and $\angle BOC = 2(x+20)$

Here,

$\angle AOC + \angle BOC = 180^0$

Or, $4x-16+2(x+20) = 180^0$

Or, $4x-16+2x+40 = 180^0$

Or, $6x+24 = 180^0$

Or, $6x = 180-24$

Or, $6x = 156$

Or, $x = \dfrac{156}{6}$

So, x = 26(Ans)

Compiled by---

Md.Masud Rana
Senior Asst. Math Teacher
Cosmo School and College
Mirpur 12, Dhaka.
Phone No:01622629662
Email :Masudrana7580@yahoo.com