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## शक्तिउत्थानआश्रमलखीसरायबिहार
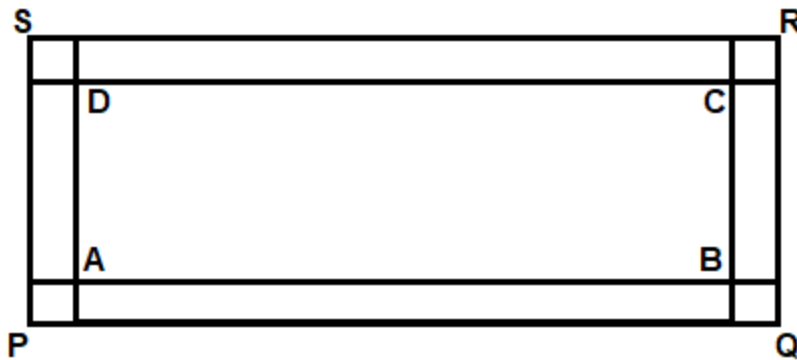
**Write the correct answer in each of the following:**

**1. In Fig. 6.1, if AB || CD || EF, PQ || RS, ∠RQD = 25° and ∠CQP = 60°, then ∠QRS is equal to**

**(A) 85°**

**(B) 135°**

**(C) 145°**

**(D) 110°**



**Solution:**

**(C) 145°**

Explanation:

According to the given figure, we have

AB || CD || EF

PQ || RS

∠RQD = 25°

∠CQP = 60°

PQ || RS.

We know that,

If a transversal intersects two parallel lines, then each pair of alternate exterior angles is equal.

Now, since, PQ || RS

⇒ ∠PQC = ∠BRS

We have ∠PQC = 60°

⇒ ∠BRS = 60° … eq.(i)

We also know that,

If a transversal intersects two parallel lines, then each pair of alternate interior angles is equal.

Now again, since, AB || CD

⇒ ∠DQR = ∠QRA

We have ∠DQR = 25°

⇒ ∠QRA = 25° … eq.(ii)

Using linear pair axiom,

We get,

∠ARS + ∠BRS = 180°

⇒ ∠ARS = 180° − ∠BRS

⇒ ∠ARS = 180° − 60° (From (i), ∠BRS = 60°)

⇒ ∠ARS = 120° … eq.(iii)

Now, ∠QRS = ∠QRA + ∠ARS

From equations (ii) and (iii), we have,

∠QRA = 25° and ∠ARS = 120°

Hence, the above equation can be written as:

∠QRS = 25° + 120°

⇒ ∠QRS = 145°

Therefore, option (C) is the correct answer.

**2. If one angle of a triangle is equal to the sum of the other two angles, then the triangle is**

**(A) An isosceles triangle**

**(B) An obtuse triangle**

**(C) An equilateral triangle**

**(D) A right triangle**

**Solution:**

**(D) A right triangle**

Explanation:

Let the angles of $\triangle ABC$ be $\angle A$, $\angle B$ and $\angle C$

Given that $\angle A = \angle B + \angle C$ ...(eq1)

But, in any $\triangle ABC$,

Using angle sum property, we have,

$\angle A + \angle B + \angle C = 180°$ ...(eq2)

From equations (eq1) and (eq2), we get

$\angle A + \angle A = 180°$

$\Rightarrow 2\angle A = 180°$

$\Rightarrow \angle A = 180°/2 = 90°$

$\Rightarrow \angle A = 90°$

Hence, we get that the triangle is a right triangle

Therefore, option (D) is the correct answer.