

1. In triangle ABC, if $AB=BC$ and $\angle B = 70^\circ$, $\angle A$ will be:

(A) 70°

(B) 110°

(C) 55°

(D) 130°

Answer: (C) 55°

Explanation: Given,

$AB = BC$

Hence, $\angle A = \angle C$

And $\angle B = 70^\circ$

By angle sum property of triangle we know:

$$\angle A + \angle B + \angle C = 180^\circ$$

$$2\angle A + \angle B = 180^\circ$$

$$2\angle A = 180 - \angle B = 180 - 70 = 110^\circ$$

$$\angle A = 55^\circ$$

2. If ABC is an equilateral triangle, then each angle equals to:

(A) 90°

(B) 180°

(C) 120°

(D) 60°

Answer: (D) 60°

Explanation: Equilateral triangle has all its sides equal and each angle measures 60° .

$AB = BC = AC$ (All sides are equal)

Hence, $\angle A = \angle B = \angle C$ (Opposite angles of equal sides)

Also, we know that,

$$\angle A + \angle B + \angle C = 180^\circ$$

$$\Rightarrow 3\angle A = 180^\circ$$

$$\Rightarrow \angle A = 60^\circ$$

$$\therefore \angle A = \angle B = \angle C = 60^\circ$$

3. Which of the following is not a criterion for congruence of triangles?

(A) SAS

(B) ASA

(C) SSA

(D) SSS

Answer: (C)

Explanation:

SSA is not a criterion for the congruence of triangles. Whereas SAS, ASA and SSS are the criteria for the congruence of triangles.

4. In $\triangle PQR$, $\angle R = \angle P$ and $QR = 4$ cm and $PR = 5$ cm. Then the length of PQ is

- (A) 2 cm
- (B) 2.5 cm
- (C) 4 cm
- (D) 5 cm

Answer: (C) 4 cm

Explanation:

Given that, in a triangle PQR , $\angle R = \angle P$.

Since, $\angle R = \angle P$, the sides opposite to the equal angles are also equal.

Hence, the length of PQ is 4 cm.

5. In $\triangle ABC$, $BC = AB$ and $\angle B = 80^\circ$. Then $\angle A$ is equal to

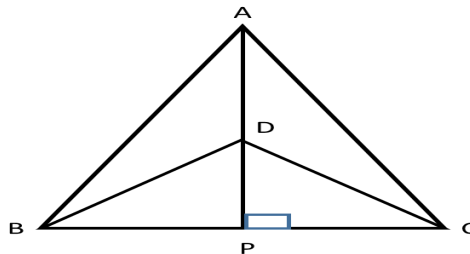
- (A) 40°
- (B) 50°
- (C) 80°
- (D) 100°

Answer: (B) 50°

Explanation: In a triangle, ABC , $BC = AB$ and $\angle B = 50^\circ$.

CASE STUDY:

A farmer in his triangular field, wants to grow wheat, rice, sugarcane and cotton. He divides his field in four parts (as shown in figure). He wants to grow wheat and rice in triangles of exactly same shape and similarly in other two triangles of same shape, he wants to grow sugarcane and cotton. In figure, $\triangle ABC$ and $\triangle DBC$ are two isosceles triangles and AP is perpendicular to side BC .



(6) In which triangle farmer will grow wheat if he grows rice in triangle ABD ?

- (A) $\triangle ACD$
- (B) $\triangle APC$
- (C) $\triangle ACB$
- (D) $\triangle ABC$

ANS: (A) $\triangle ACD$

Here $\triangle ACD \cong \triangle ABD$ (By SSS congruency criterion)

He wants to grow wheat and rice in triangles of exactly same shape

(7) Which triangle farmer will choose for cotton and sugarcane?

- (A) $\triangle ACD$ and $\triangle DCP$
- (B) $\triangle DBP$ and $\triangle DCP$
- (C) $\triangle ACB$ and $\triangle DCP$
- (D) $\triangle ABC$ and $\triangle ACD$

ANS: (B) $\triangle DBP$ and $\triangle DCP$

In other two triangles of same shape, he wants to grow sugarcane and cotton.

Because $\triangle DBP \cong \triangle DCP$ (By RHS congruency criterion)

(8) What is the congruency criterion for $\triangle ABD$ and $\triangle ACD$

- (A) RHS
- (B) SAS
- (C) SSS
- (D) ASA

ANS: (C) SSS

$AB = AC$ (Equal sides), $BD = CD$ (Equal sides), $AD = AD$ (Common)
 $\triangle ABD \cong \triangle ACD$

9. If $\angle A = 90^\circ$, then find the value of $\angle B$ and $\angle C$

- (A) $45^\circ, 45^\circ$
- (B) $60^\circ, 90^\circ$
- (C) $50^\circ, 30^\circ$
- (D) $10^\circ, 20^\circ$

ANS: (A) $45^\circ, 45^\circ$

$\angle B = \angle C = 45^\circ$

$AB = AC \Rightarrow \angle B = \angle C$

But: $\angle A + \angle B + \angle C = 180^\circ \Rightarrow \angle B + \angle C = 90^\circ \Rightarrow \angle B = \angle C = 45^\circ$

10. If $BC = 500$ m and $AP = 300$ m. What is the area of the field?

- (A) 150000 sq. m
- (B) 125000 sq. m
- (C) 75000 sq. m
- (D) 100000 sq. m

ANS: (C) 75000 sq. m

Area of Triangle = $\frac{1}{2} \times BC \times AP = \frac{1}{2} \times 500 \times 300 = 75000$ sq. m