Quadrilaterals

Answer :

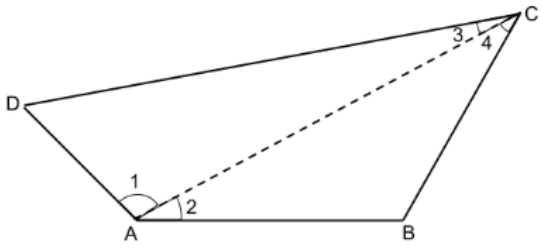
(i) 4
(ii) 4
(iii) 4, co-linear
(iv) 2
(v) opposite
(vi) 360°

Q2.

Answer :

(i) There are four pairs of adjacent sides, namely *(AB,BC)*, *(BC,CD)*, *(CD,DA)* and *(DA,AB)*.
(ii) There are two pairs of opposite sides, namely *(AB,DC)* and *(AD,BC)*.
(iii) There are four pairs of adjacent angles, namely ∠A,∠B, ∠B, ∠C, ∠C,∠D and ∠D,∠A.
Answer :
(iv) There are two pairs of opposite angles, namely ∠A,∠C and ∠B,∠D.
(v) There are two diagonals, namely *AC* and *BD*.

Q3.



Let *ABCD* be a quadrilateral.
Join *A* and *C*.

Now, we know that the sum of the angles of a triangle is 180°.

For △ABC:∠2+∠4+∠B=180o ... (1)

For △ADC: ∠1+∠3+∠D=180o ... (2)

For $\triangle ADC$:

$$\angle 1 + \angle 3 + \angle D = 180^o \quad \ldots (2)$$

Adding (1) and (2):

$$(\angle 1 + \angle 2 + \angle 3 + \angle 4) + \angle B + \angle D = 360^o$$

or $\angle A + \angle B + \angle C + \angle D = 360^o$

Hence, the sum of all the angles of a quadrilateral is 360°.

Q4.

Answer :

Sum of all the four angles of a quadrilateral is 360°.

Let the unknown angle be x°.76+54+108+x=360238+x=360x=122

The fourth angle measures 122°.

Q5

Answer :

Let the measures of the angles of the given quadrilateral be (3x)°,(5x)°,(7x)° and (9x)°. Sum of all the angles of a quadrilateral is 360o.∴3x+5x+7x+9x=36024x=360x=15

Angles measure: (3×15)°=45°(5×15)°=75°(7×15)°=105°(9×15)°=135°

Q6

Answer :

Sum of the four angles of a quadrilateral is 360°.

If the unknown angle is x°, then:

75+75+75+x=360x=360-225=135

The fourth angle measures 135°.

Q7.

Answer :

Let the three angles measure x° each.

Sum of all the angles of a quadrilateral is 360°.

∴ x+x+x+120=3603x+120=3603x=240x=2403=80

Each of the equal angles measure 80°.

Answer :

Sum of the angles of a quadrilateral is 360°.
∴∠A+∠B+60o+100o=360°∠A+∠B=360-100-
60=200°or12∠A+∠B=100° ... (1)Sum of the angles of a triangle is 180°.In △APB: 12∠A+∠B+∠P=180°
Using equation (1):100°+∠P=180°⇒∠P=80°

∴ ∠APB=80°