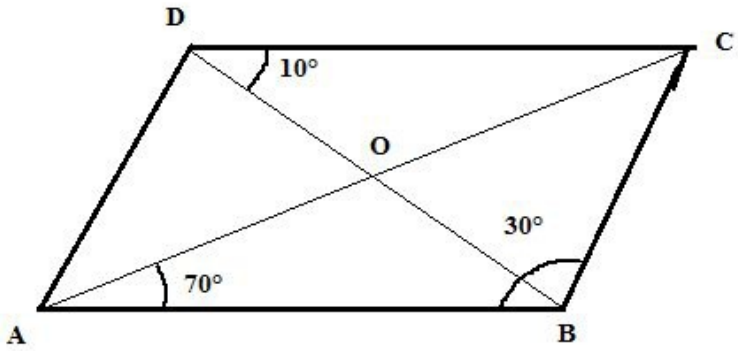
Understanding shapes-III special types of quadrilaterals Ex 17.1 Q18

Answer :

We know that the adjacent angle s of a parallelogram are supplementry.
Hence, $(3x+10)^\circ$ *and* $(3x-4)^\circ$ are supplementry.
$(3x+10)^\circ+(3x-4)^\circ=180^\circ$
$6x^\circ+6^\circ=180^\circ$
$6x^\circ=174^\circ$
$x=29^\circ$
First angle $=(3x+10)^\circ=(3\times29^\circ+10^\circ)=97^\circ$
Second angle $=(3x-4)^\circ=83^\circ$
Thus, the angles of the parallelogram are 97°, 83°, 97° and 83°.

Understanding shapes-III special types of quadrilaterals Ex 17.1 Q19

Answer :



$\angle ABC=30^\circ$
$\therefore\ \angle ADC=30^\circ$ (opposite angle of *the* parallelogram)
and $\angle BDA=\angle ADC-\angle BDC=30^\circ-10^\circ=20^\circ$
$\angle BAC=\angle ACD=70^\circ$ (*alternate angle*)
In $\triangle$ ABC :
$\angle CAB+\angle ABC+\angle BCA=180^\circ$
$70^\circ+30^\circ+\angle BCA=180^\circ$
$\therefore\ \angle BCA=80^\circ$
$\angle DAB=\angle DAC+\angle CAB=70^\circ+80^\circ=150^\circ$

$\angle \mathrm{BCD} = 150^\circ$ (opposite angle of *the* parallelogram)

$\angle DCA = \angle CAB = 70^\circ$

In $\triangle \mathrm{DOC}$:

$\angle \mathrm{ODC} + \angle \mathrm{DOC} + \angle \mathrm{OCD} = 180$

$10^\circ + 70^\circ + \angle \mathrm{DOC} = 180^\circ$

$\therefore \angle \mathrm{DOC} = 100^\circ$

$\angle \mathrm{DOC} + \angle \mathrm{BOC} = 180^\circ$

$\angle \mathrm{BOC} = 180^\circ - 100^\circ$

$\angle \mathrm{BOC} = 80^\circ$

$\angle AOD = \angle BOC = 80^\circ$ (vertically opposite angles)

$\angle \mathrm{AOB} = \angle \mathrm{DOC} = 100^\circ$ (vertically opposite angles)

$\angle \mathrm{CAB} = 70^\circ$ (given)

$\angle \mathrm{ADB} = 20^\circ$

$\angle DBA = \angle BDC = 10^\circ$ (*alternate angle*)

$\angle ADB = \angle DBC = 20^\circ$ (*alternate angle*)

********** END **********