Worksheet -15   Subject: - Mathematics   Class: - VIII   Teacher: - Ms. Nancy

Name: _____ Class & Sec: _____ Roll No. _____ Date: 22.05.2020

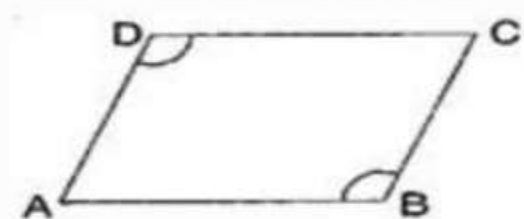**3. Can a quadrilateral ABCD be a parallelogram, if:**

(i) $\angle D + \angle B = 180°$?
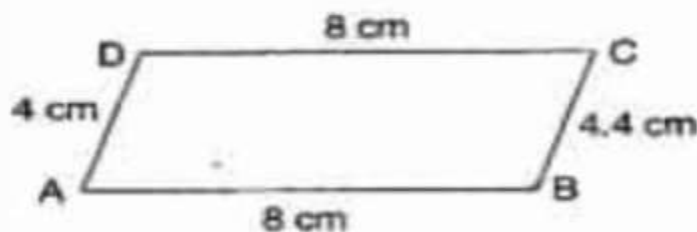
(ii) AB = DC = 8 cm, AD = 4 cm and BC = 4.4 cm?

(iii) $\angle A = 70°$ and $\angle C = 65°$?

Ans. (i) $\angle D + \angle B = 180°$
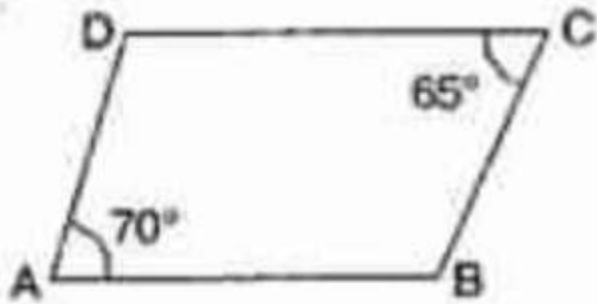
It can be, but here, it needs not to be.

(ii) No, in this case because one pair of opposite sides are equal and another pair of opposite sides are unequal. So, it is not a parallelogram.
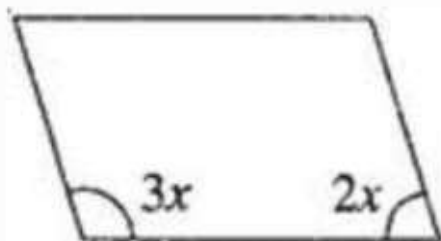

(iii) No. $\angle A \neq \angle C$.

Since opposite angles are equal in parallelogram and here opposite angles are not equal in quadrilateral ABCD. Therefore it is not a parallelogram.

5. The measure of two adjacent angles of a parallelogram are in the ratio 3 : 2. Find the measure of each of the angles of the parallelogram.

Ans. Let two adjacent angles be $3x$ and $2x$.

Since the adjacent angles in a parallelogram are supplementary.

$\therefore 3x + 2x = 180°$

$\Rightarrow 5x = 180°$

$\Rightarrow x = \dfrac{180°}{5} = 36°$

$\therefore$ One angle = $3x = 3 \times 36° = 108°$

And Another angle = $2x = 2 \times 36° = 72°$

6. Two adjacent angles of a parallelogram have equal measure. Find the measure of the angles of the parallelogram.

Ans. Let each adjacent angle be x.

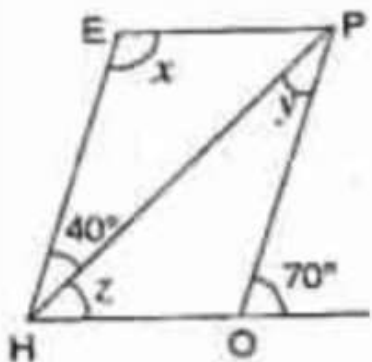Since the adjacent angles in a parallelogram are supplementary.

$$\therefore x + x = 180°$$

$$\Rightarrow 2x = 180°$$

$$\Rightarrow x = \frac{180°}{2} = 90°$$

Hence, each adjacent angle is $90°$.

7. The adjacent figure HOPW is a parallelogram. Find the angle measures x, y and z. State the properties you use to find them.

$\angle$HOP + $70° = 180°$

Ans. Here $\angle$HOP = $180° - 70° = 110°$

[Angles of linear pair]
And $\angle$E = $\angle$HOP

[Opposite angles of a ∥gm are equal]
$\Rightarrow x = 110°$

$\angle$PHE = $\angle$HPO

[Alternate angles]
$\therefore y = 40°$

Now $\angle$EHO = $\angle$O = $70°$

$\angle$PHE = $\angle$HPO

[Alternate angles]
$\therefore y = 40°$

Now $\angle$EHO = $\angle$O = $70°$

[Corresponding angles]
$\Rightarrow 40° + z = 70°$

$\Rightarrow z = 70° - 40° = 30°$

Hence, $x = 110°, y = 40°$ and $z = 30°$