Sadiq Public School

Do the right, fear no man

Subject: Mathematics   **Class: C1**   **Day: Saturday (16ᵗʰ Nov, 2024)**

Lesson [Chapter # 10] This lesson is about to solve the word problems related to calculate missing angles in quadrilaterals (Rhombus, Trapezium and Kite).

A) Inquiry:

We have discussed about the classification and properties of quadrilaterals and calculated the unknown angles in quadrilaterals in details in the previous lessons. In this lesson, we will learn how to solve the word problems related to calculate missing angles in quadrilaterals (**Rhombus, Trapezium and Kite**), and using these angle facts to generate equations and solve problems.

- What is a Kite?
- What are the types of quadrilaterals?
- What are the angle sum properties of a Trapezium?
- What are the properties of diagonals in various quadrilaterals?
- Do you have any idea about to solve the word problems related to calculate missing angles in quadrilaterals (Rectangle and Parallelogram)?
- Where can we use the concepts which you have learnt in the daily life?
  Think about these questions.

B) Information:

- **You can review this topic from your text book pages(from page # 163 to 169)**
- **You can get help from the following link: https://www.youtube.com/watch?v=yhMgb_wSnEI for further understanding.**

Problems Related to Quadrilaterals

The quadrilateral is an important topic for students because these concepts are studied in more depth in higher education. Here, we have provided questions involving quadrilaterals and related formulas that students can simply solve. Quadrilateral questions and answers are provided here for students to understand the topic better. Practicing these questions can assist students in solving difficult questions and achieving higher exam scores. Learn more about quadrilaterals here.

The quadrilateral is one of the most common geometrical shapes we observe in everyday life. As a result, students must be taught about quadrilaterals. The questions in this section have been prepared, so that students can do well not only in academic exams but also in competitive exams.

> **Definition:** In Geometry, a quadrilateral is a closed shape formed by connecting four points, among which three points are non-collinear. A quadrilateral is made up of four sides, four angles, and four vertices. It's important to note that the sum of a quadrilateral's internal angles is always 360°.
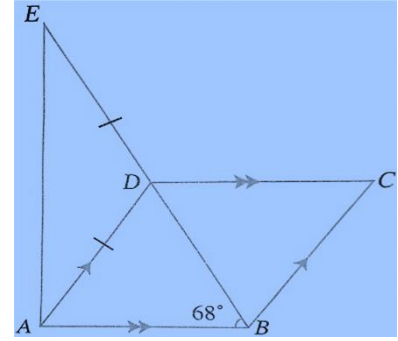
Go through the below quadrilaterals questions and understand the concept quickly.

Quadrilateral Questions with Solutions

- Rhombus
- Trapezium
- Kite

Angles in a Rhombus (Example with Solutions)

Example 1: The figure shows a rhombus $ABCD$. The diagonal BD is produced to E such that $AD = DE$. If $A\hat{B}E = 68°$, calculate (i) $B\hat{C}D$, (ii) $D\hat{A}E$.

Solution:

(i) $C\hat{B}D = 68°$ (diagonals bisect interior angles of a rhombus)

$B\hat{C}D + 68° + 68° = 180°$ (int. ∠s, AB // DC)

$\quad\quad B\hat{C}D = 180° - 68° - 68°$

$\quad\quad\quad\quad = 44°$

(ii) $\quad A\hat{D}B = 68°$ (base ∠s of isos. $\triangle ABD$)

$D\hat{A}E + A\hat{E}D = 68°$ (ext. ∠ of $\triangle$)

$\quad\quad D\hat{A}E = \dfrac{68°}{2}$ (base ∠s of isos. $\triangle ADE$)

$\quad\quad\quad\quad = 34°$

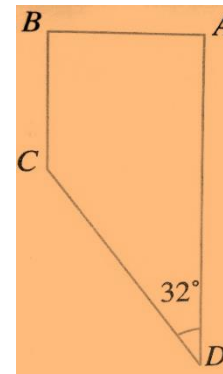**Angles in a Trapezium (Example with Solutions)**

Example 2: The figure shows a trapezium $ABCD$. If $A\hat{D}C = 360°$, Calculate (i) $A\hat{B}C$, (ii) $B\hat{C}D$.

Solution:

The sum of interior angles in any quadrilateral is 360°.

(i) $B\hat{C}D + 36° = 180°$ (The sum of pair of angles between two parallel lines is 180°.

$\quad B\hat{C}D = 180° - 36° = 144°$

(ii) $A\hat{D}C = 360° - (144° + 90°)$ (The sum of interior angles in a quadrilateral.)
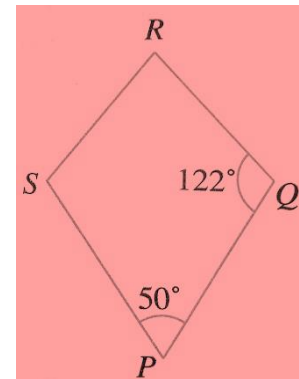
$\quad A\hat{D}C = 360° - 234° = 126°$

Angles in a Kite (Example with Solutions)

Example 3: The figure shows a kite $PQRS$. If $P\hat{Q}R = 122°$, $SR = RQ$. Calculate (i) $R\hat{S}P$, (ii) $Q\hat{R}S$.

Solution:

(i) $P\hat{Q}S = R\hat{S}P$ (Opposite obtuse angles are equal).

$\quad R\hat{S}P = 122°$

(ii) $Q\hat{R}S = 360° - (122° + 122° + 50°)$ (The sum of interior angles in a quadrilateral.)

$\quad\quad = 360° - 294°$

$\quad\quad = 66°$

C) Synthesising/ absorbing the information:

- Write your own summary notes in your note books about the topics that has been taught to you.
- Write down the three examples and applications for each topic.

D) Practising: (Solve the questions of Exercise: 10B (Q. 9, 10 and 11 [(i), (ii)])

Students: There is no need to send the photos of daily homework.

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