# UNDERSTANDING QUADRILATERALS

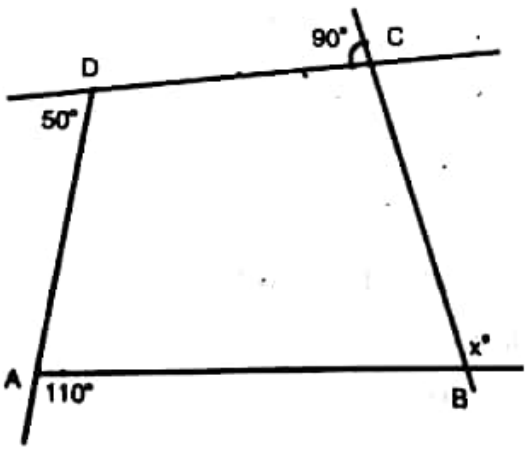
**Points to Remember:**

1. A simple closed curve made up of line segment is called a polygon.
2. The line segments obtained by joining vertices which are not adjacent are called the diagonals of the polygon.
3. A regular polygon is a polygon whose all sides and all angles are equal.
4. A four sided polygon is called a quadrilateral.
5. Sum of angles of a quadrilateral is $360^0$.
6. For an n sided polygon the sum of its angles is given by $(n-2)\times180^0$
7. For an n sided polygon the sum of exterior angles is $360^0$
8. Each exterior angle of a regular polygon of n sides is equal to $\left(\frac{360}{n}\right)^0$.

## ASSIGNMENT

Q1. In a quadrilateral ABCD, the angles A,B,C, and D are in the ratio 1:2:3:4. Find the measure of each angle of the quadrilateral.

Q2. Find the value of x in the adjacent figure.




Q3. What is the measure of each angle of a regular hexagon.

Q7. Simplify $7x(x^3+x-4)+12$ and find its value for $x=1$, $x=-1$ and $x=0$.

Q8. Subtract $12p(p-2q+5r)$ from $18p(p+8q-6r)$

Q9. Find the product

(i). $(3.5p+2q)(3.5p-2q)$

(ii) $\frac{4}{9}a^2+5b^2$ and $3\left(a^2-\frac{1}{3}b^2\right)$

(iii) $(4a+b+c)(4a-b+c)$.

Q10. Solve using Identities.

(i). $\left(5a-\frac{3}{7}\right)\left(5a-\frac{3}{7}\right)$

(ii). $(3ab+5)(3ab+8)$.

(iii). $(0.5a-0.3b)^2$

(iv). $(7x+9)^2-(7x-9)^2$

(v). $\left(\frac{1}{7}p+5q\right)^2$

Q11. Evaluate using Identities.

(i) $298\times302$.

(ii) $3.2^2$

(iii) $4.2\times4.5$

(iv) $53^2-47^2$

## Answers

Q3. (i). $21a^2bc+6+12ab$ (ii) $20p^2q^2+3r^2$

Q4. $16ab-20+8ab^2$

Q5. $m^3n^3p^2$ sq. units.

Q6. (i). $324a^3b^4c$ cu. units. (ii). $210x^4y^6$ cu. Units.

Q7. $7x^4+7x^2-28x+12$, 0, 56, 12.

Q8. $6p^2+168pq-168pr$.

Q9. (i) $12.25p^2-4q^2$ (ii) $\frac{4}{3}a^4+\frac{131}{9}a^2b^2-5b^4$ (iii) $16a^2-b^2+c^2+8ac$

Q10. (i) $25a^2-\frac{30a}{7}+\frac{9}{49}$ (ii) $9a^2b^2+39ab+40$ (iii) $0.25a^2-\frac{3}{10}ab+0.09b^2$

(iv) $252x$ (v) $\frac{1}{49}p^2+\frac{10}{7}pq+25q^2$

Q11. (i) 89996 (ii) 10.24 (iii) 18.9 (iv) 600