

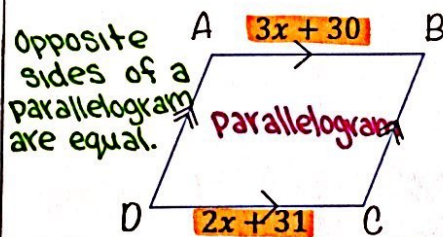
SOLVING QUADRILATERALS NOTES

Steps for SOLVING Quadrilaterals

- Step 1: Identify the type of quadrilateral.
- Step 2: Look at given information. (sides, angles or both?)
- Step 3: Determine which property of the quadrilateral applies to the given information.
- Step 4: Set up equation(s) using the property & given information.
- Step 5: Solve the equation(s) for the unknown variable(s).
- Step 6: Substitute the answer for the variable(s) and find the requested side length / & measure.

Examples

1. Find the length of \overline{AB} .

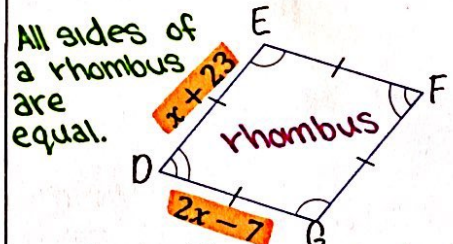


Opposite sides of a parallelogram are equal.

$$\begin{array}{r} 3x+30 = 2x+31 \\ -2x \quad -30 \quad -2x \quad -30 \\ \hline x = 1 \end{array}$$

$$\begin{array}{l} AB = 3(1) + 30 \\ AB = 33 \end{array}$$

2. Find the length of \overline{GF} .

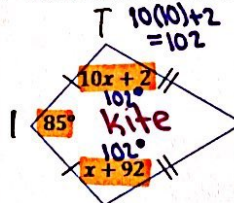


All sides of a rhombus are equal.

$$\begin{array}{r} x+23 = 2x-7 \\ -x \quad +7 \quad -x \quad +7 \\ \hline 30 = x \end{array}$$

$$\begin{array}{l} GF = (30) + 23 \\ = 53 \end{array}$$

3. Find the measure of $\angle E$.

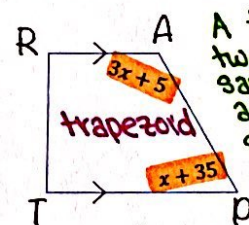


Kites have one pair of opposite sides that are congruent.

$$\begin{array}{r} 10x+2 = x+92 \\ -x \quad -2 \quad -x \quad -2 \\ \hline 9x = 90 \\ \frac{9x}{9} = \frac{90}{9} \\ x = 10 \end{array}$$

$$\begin{array}{l} m\angle E + 85^\circ + 2(102^\circ) = 360^\circ \\ m\angle E + 85^\circ + 204^\circ = 360^\circ \\ m\angle E + 289^\circ = 360^\circ \\ -289^\circ \quad -289^\circ \\ \hline m\angle E = 71^\circ \end{array}$$

4. Find the measure of $\angle A$.



A trapezoid has two pairs of same side interior angles that are supplementary.

$$\begin{array}{r} (3x+5) + (x+35) = 180^\circ \\ 3x+x+5+35 = 180^\circ \\ 4x+40 = 180^\circ \\ -40 \quad -40 \\ \hline 4x = 140 \\ \frac{4x}{4} = \frac{140}{4} \\ x = 35 \end{array}$$

$$\begin{array}{l} m\angle A = 3(35) + 5 \\ = 105 + 5 \\ = 110^\circ \end{array}$$