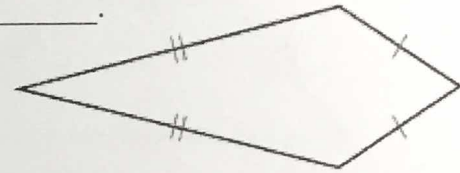


Kite (DEF): A kite is a quadrilateral that has two pairs of consecutive, $\cong$ sides,

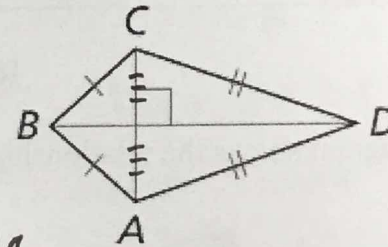
BUT opposite sides are not $\cong$.



Kite Diagonals Theorem

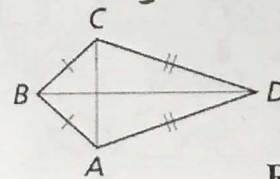
If a quadrilateral is a kite, then its diagonals are perpendicular.

*line of symm. is $\perp$ bisector of other diag.



PROOF: **Given:** ABCD is a kite

Prove: $\overline{AC} \perp \overline{BD}$



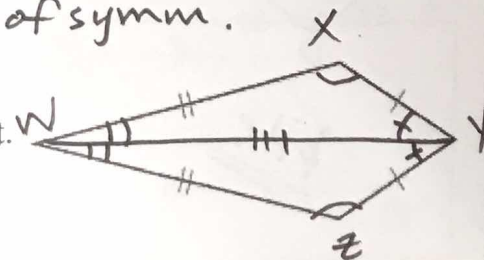
Statements	Reasons
① ABCD is a kite	① given
② $\overline{AB} \cong \overline{CB}$, $\overline{DC} \cong \overline{DA}$	② def. of a kite
③ B is on $\perp$ bisector of $\overline{AC}$ D " " " " " "	③ Conv. of $\perp$ bisector thm (section 6.1)
④ $\overline{AC} \perp \overline{BD}$	④ Thru any 2 points is 1 line

Opposite Angles Theorem

If a quadrilateral is a kite, then exactly one pair of opposite angles are congruent.

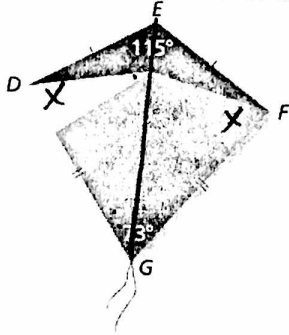
*line of symm. bisects opp. $\angle$ s

opp. the line of symm.



Example

8. Find $m\angle D$ in the kite shown.



$$x + x + 115 + 73 = 360$$

$$2x = 172$$

$$x = 86$$

$$m\angle D = 86^\circ$$

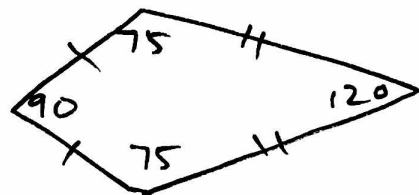
9. In a kite, the measures of the angles are $3x^\circ$, 75° , 90° , and 120° . Find the value of x . What are the measures of the angles that are congruent?

$$3x + 75 + 90 + 120 = 360$$

$$3x = 75$$

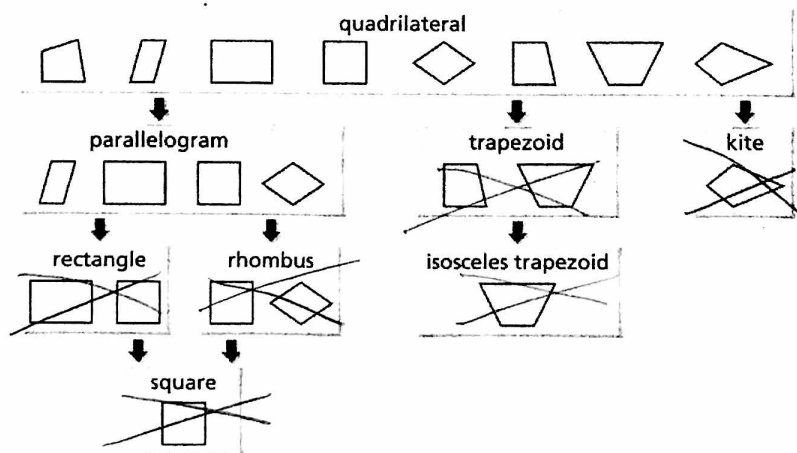
$$x = 25$$

$\cong \angle$ s are 75°



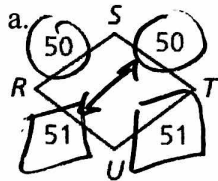
Identifying a Quadrilateral

The following diagram shows the relationships among the special quadrilaterals you studied in the chapter.

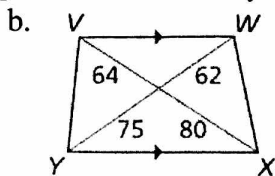


Example:

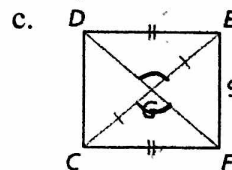
10. Give the most specific name for the quadrilateral. Briefly explain your reasoning.



kite



trapezoid



quad.