

Section 8.4 – Trapezoids and Kites

A _____ is a quadrilateral with exactly _____ pair of parallel sides.

The parallel sides, \overline{AB} and \overline{DC} , are the _____.

A trapezoid has two pairs of _____.

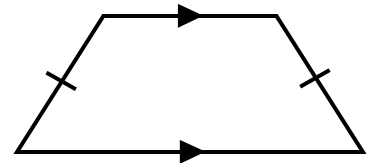
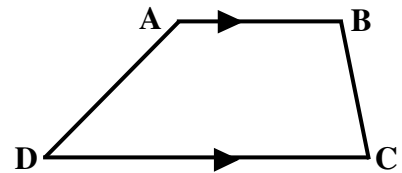
_____ and _____ are one pair of base angles.

_____ and _____ are the other pair of base angles.

The nonparallel sides, \overline{AD} and \overline{BC} , are the _____ of the trapezoid.

If the legs of a trapezoid are congruent, then the trapezoid is an _____.

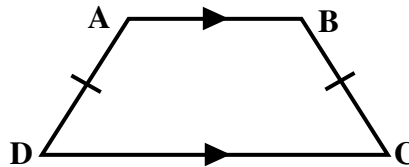
Note: Label Diagram



Isosceles Trapezoid Base Angles Theorem

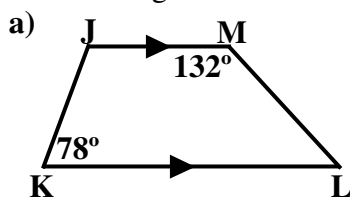
If a trapezoid is isosceles, then each pair of base angles is congruent.

$$\angle A \cong \angle B, \angle C \cong \angle D$$

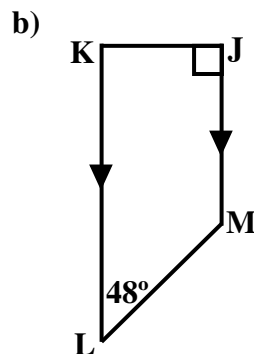


Ex 1:

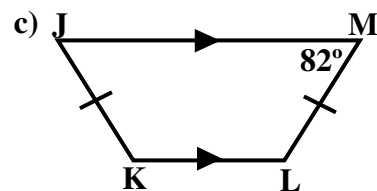
Find the angle measures of trapezoid JKLM.



$$m\angle J = \underline{\hspace{1cm}} \quad m\angle L = \underline{\hspace{1cm}}$$



$$m\angle K = \underline{\hspace{1cm}} \quad m\angle M = \underline{\hspace{1cm}}$$



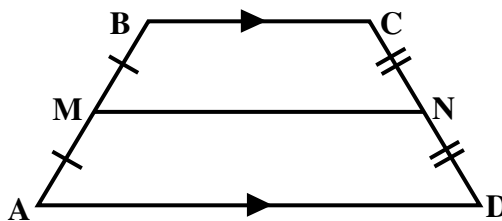
$$m\angle J = \underline{\hspace{1cm}} \quad m\angle K = \underline{\hspace{1cm}} \quad m\angle L = \underline{\hspace{1cm}}$$

A _____ of a trapezoid is the segment that connects the midpoints of its legs.

Midsegment Theorem for Trapezoids

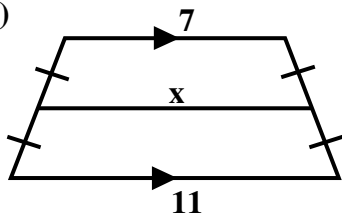
The midsegment, \overline{MN} , of a trapezoid is parallel to each base and its length is one half the sum of the lengths of the bases.

$$MN = \frac{1}{2}(\text{base}_1 + \text{base}_2) \quad \text{or} \quad MN = \frac{1}{2}(AD + BC)$$

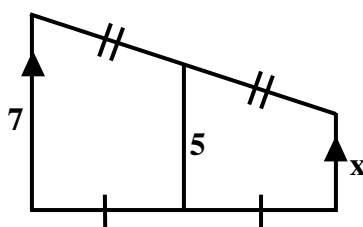


Ex 2: Solve for x.

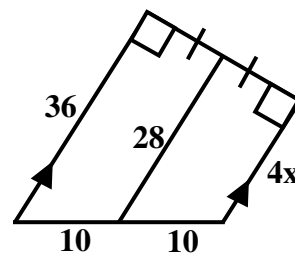
a)



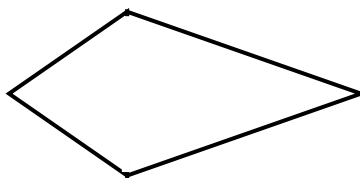
b)



c)

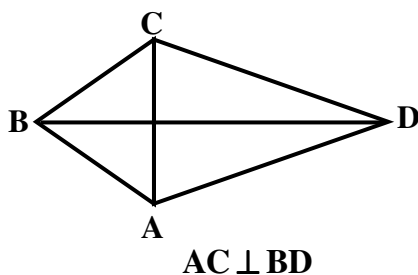


A _____ is a quadrilateral that has two pairs of consecutive congruent sides

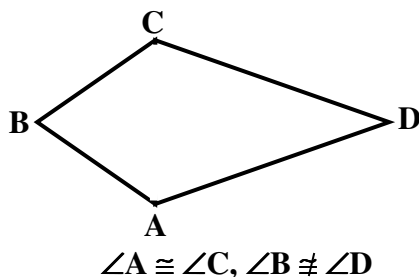


Properties of a Kite

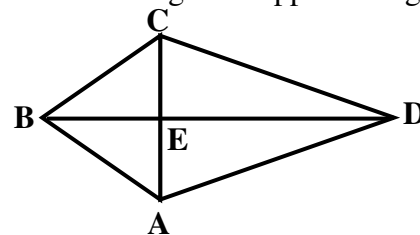
If a quadrilateral is a kite, then its diagonals are perpendicular.



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

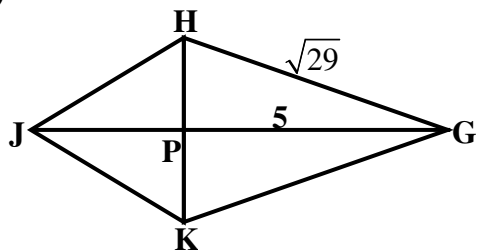


One diagonal of a kite, bisects the other diagonal and one diagonal bisects the pair of non-congruent opposite angles.



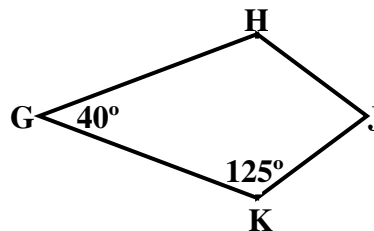
Ex 3: JH GK is a kite. Find the indicated measurement.

a)



HP = _____ GK = _____ PK = _____

b)



$m\angle H = \underline{\hspace{2cm}}$ $m\angle J = \underline{\hspace{2cm}}$