Diagonals of a Rhombus bisect opposite angles.
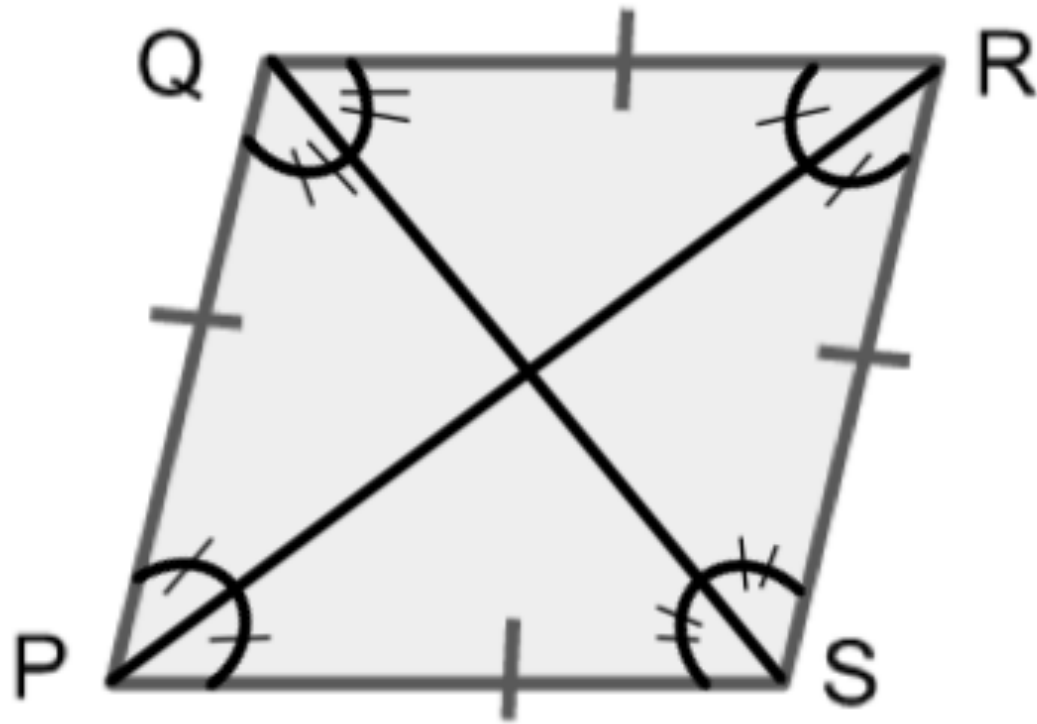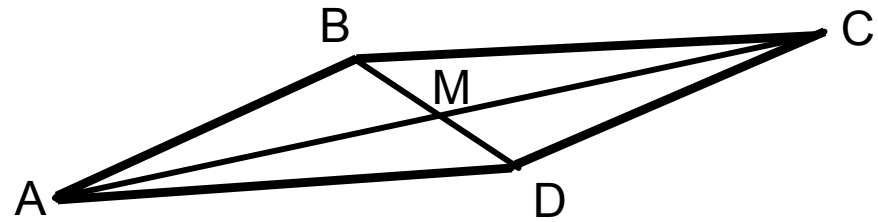
Diagonals of a parallelogram bisect each other.

M is the midpoint of DB and AC

Kites and Trapezoids
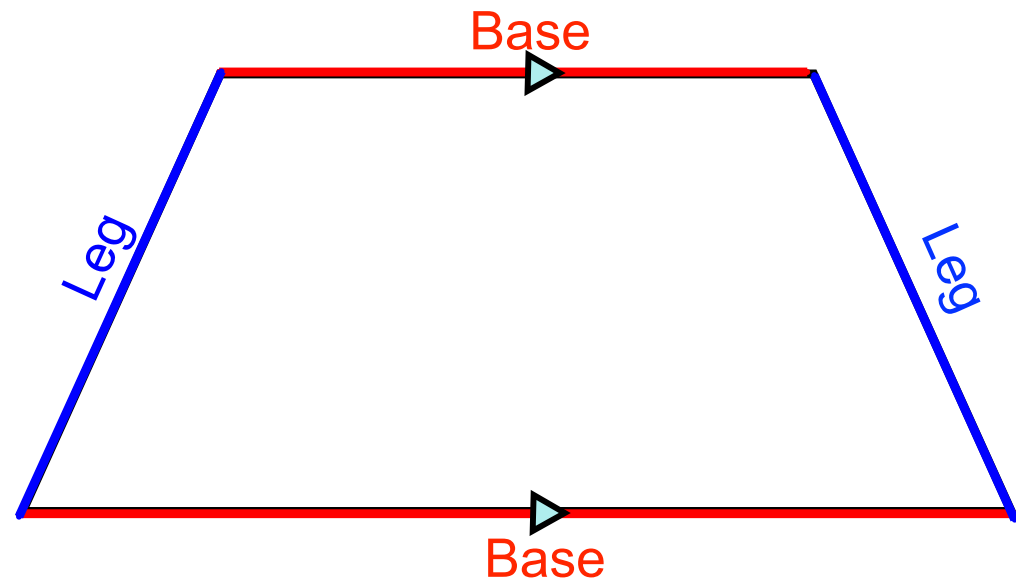
Trapezoids

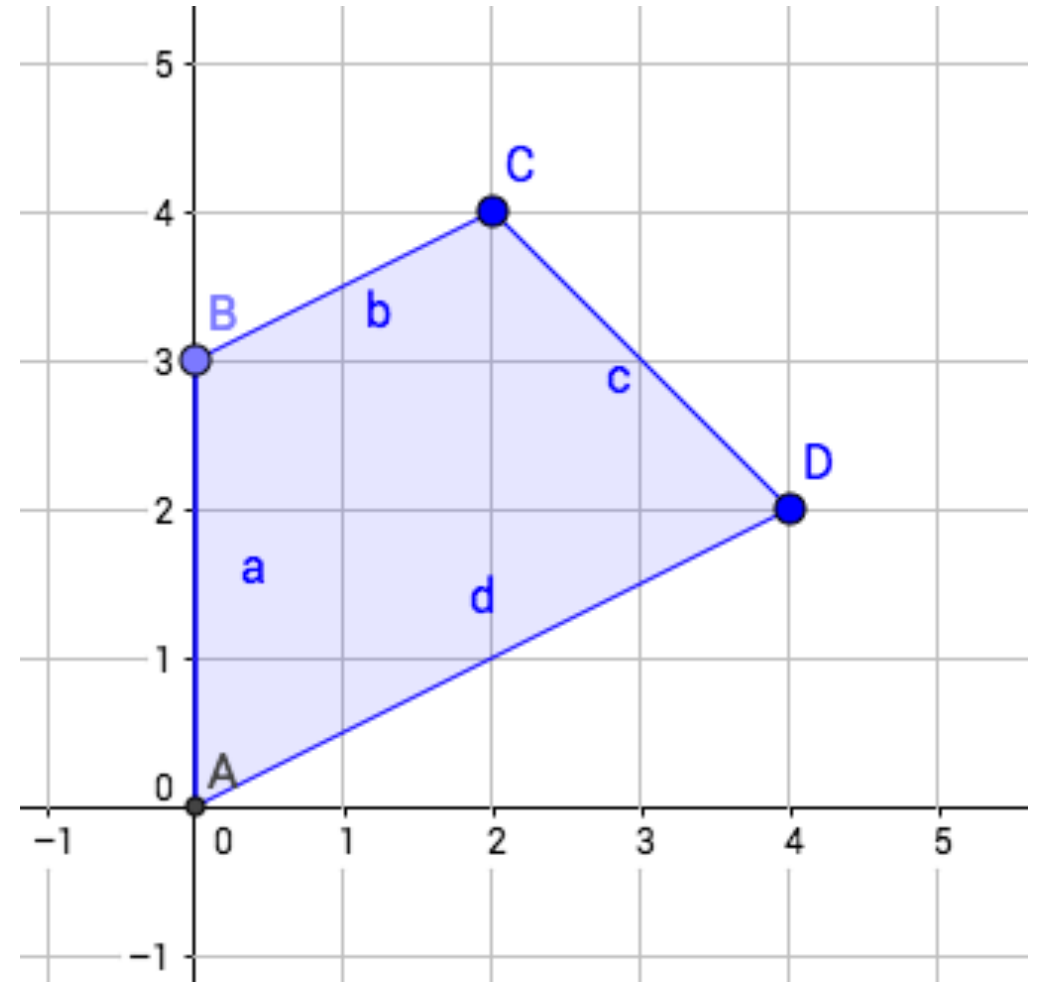A trapezoid is a quadrilateral with exactly one pair of parallel sides.

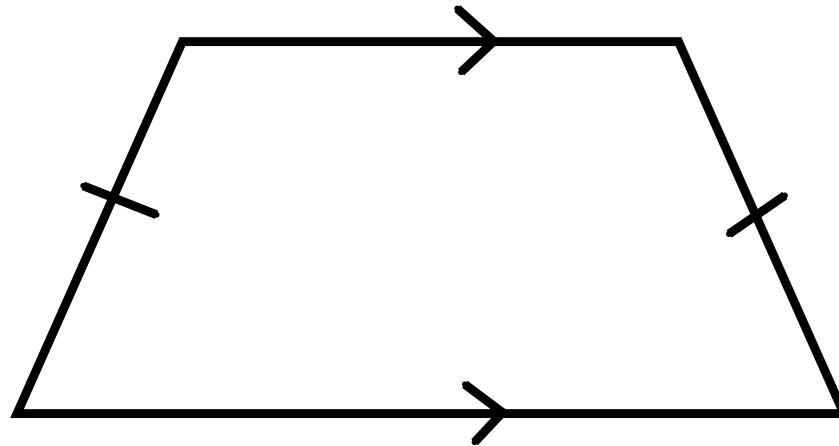A trapezoid has 2 bases.

The bases are always the parallel sides.

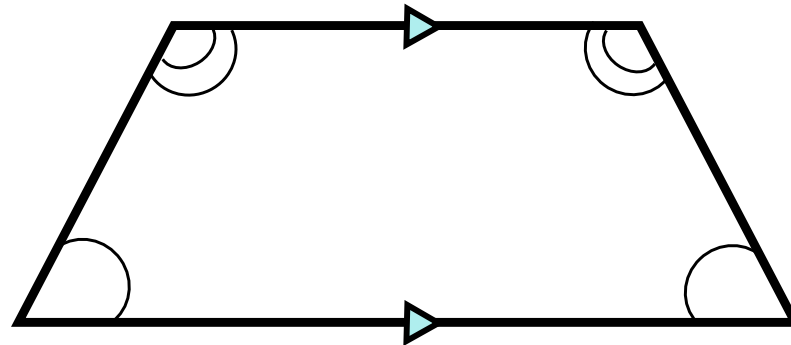The legs are always the nonparallel sides.

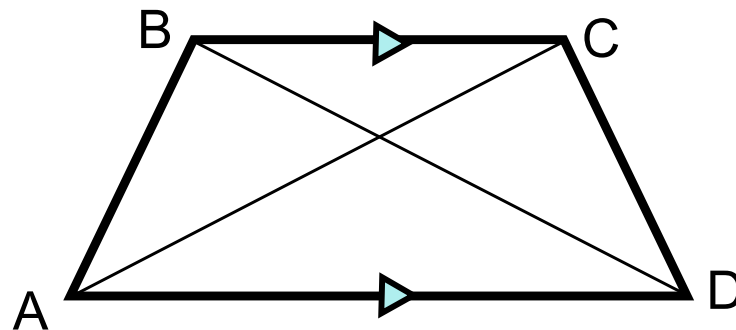Show that ABCD is a trapezoid

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

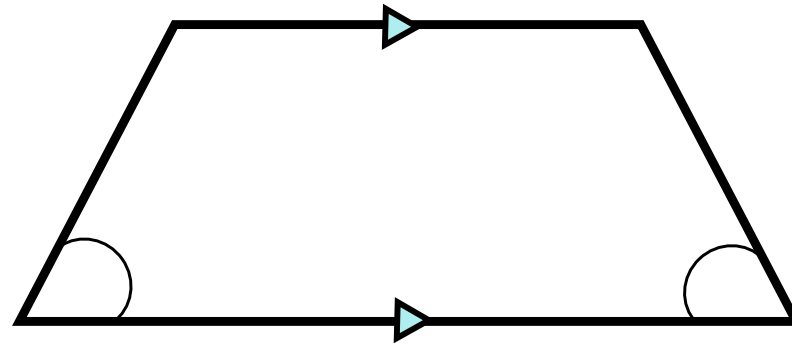If a trapezoid is isosceles, then each pair of base angles is congruent. (Thm 8.14)

A trapezoid is isosceles if and only if the diagonals are congruent. (Thm 8.16)

$AC \cong BD$

If a trapezoid has a pair of congruent base angles, then it is an isosceles trapezoid. (Thm 8.15)

This is an isosceles trapezoid.

m<A = 95° Find:

m<B =

m<C =
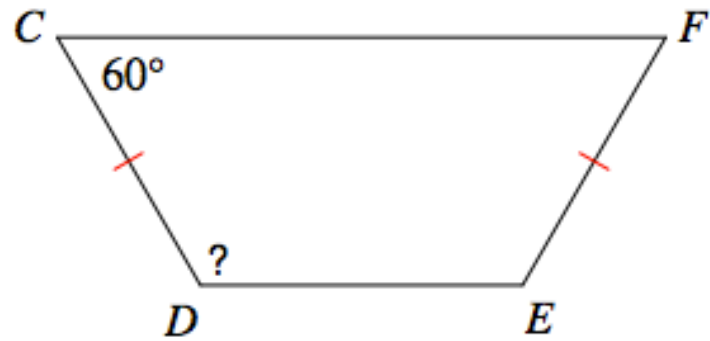
m<D =

The following quadrilaterals are trapezoids. Find the indicated values.

C _____ F
60°

?
D   E

DF = 8.7
Find EG

G _____ D

F _____ E

U _____ T
    92°

?
V   S

Y _____ V
70°

?
X   W
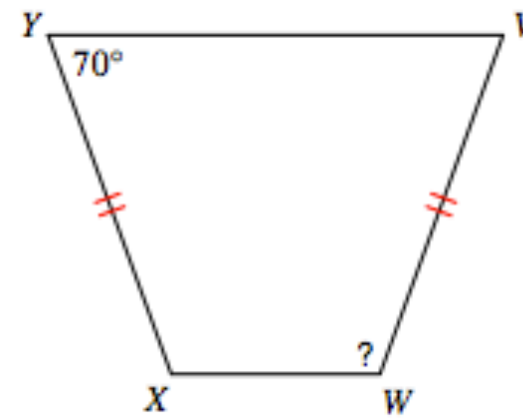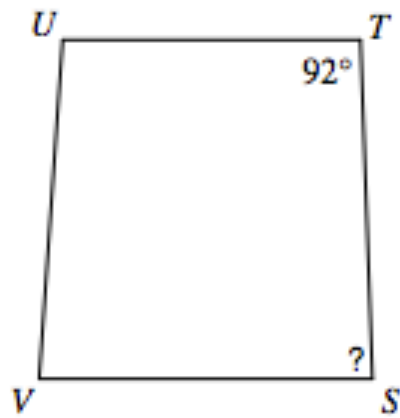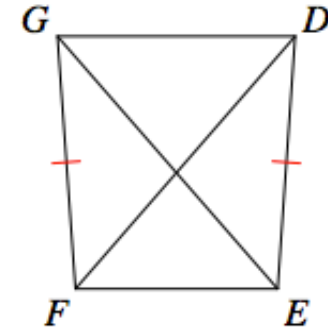
The midsegment of a trapezoid is a line that connects the midpoints of each leg.
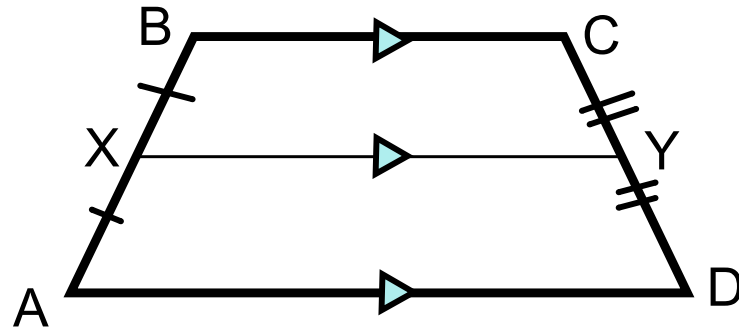
The midsegment is parallel to both the bases.

The length of the midsegment is 1/2 the sum of the lengths of the bases.

So XY= 1/2 (AD + BC).

Theorem 8.17

Find the length of the midsegment of this trapezoid given BC= 12 inches and AD=28.
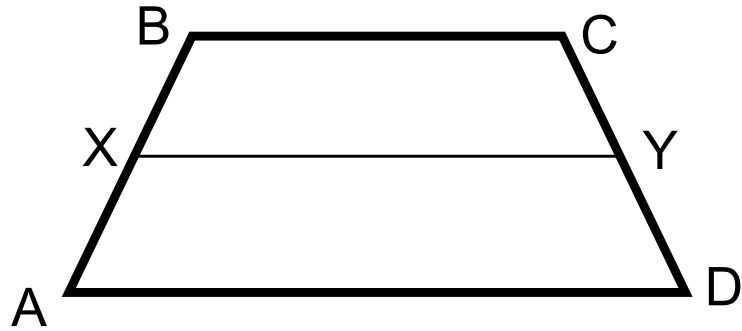
Find the length of the midsegment of this trapezoid.
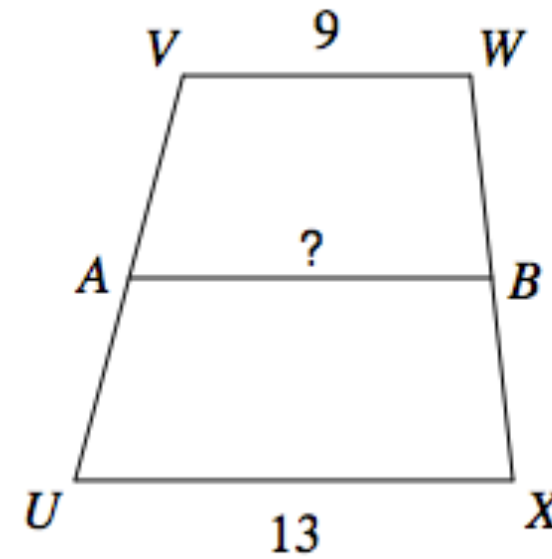
JKLM is a trapezoid. NP is the midsegment of this trapezoid.

Find ML

Kites

A kite is a quadrilateral that has two pairs of consecutive congruent sides, but opposite sides are not congruent.

If a quadrilateral is a kite, then its diagonals are perpendicular. (Thm. 8.18)

If a quadrilateral is a kite, then exactly one pair of opposite angles are congruent. (Thm. 8.19)
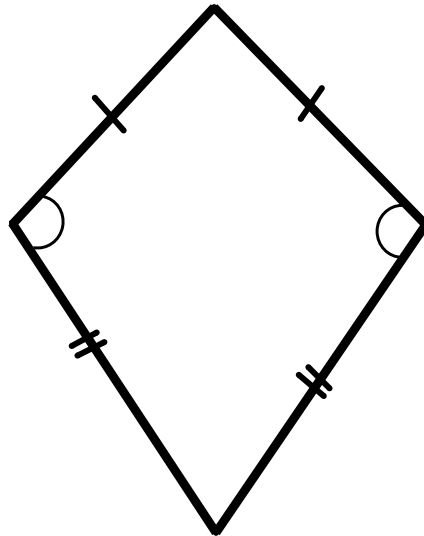
Put an X in the box if the shape always has the given property.

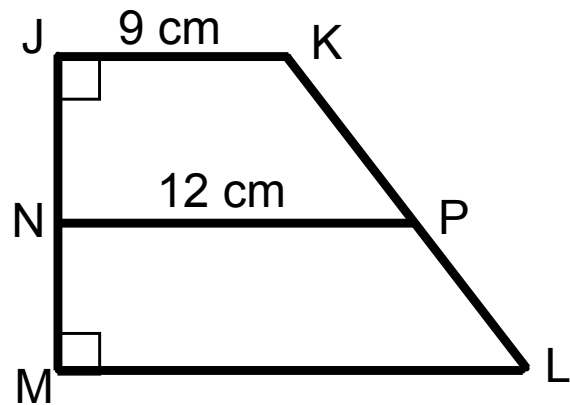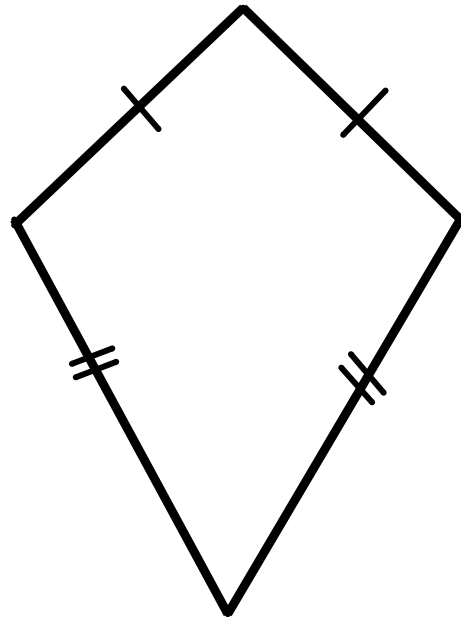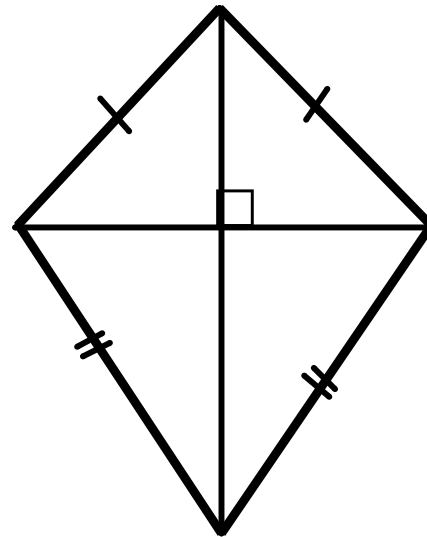| Property	Parallelogram	Rectangle	Rhombus	Square	Kite	Trapezoid
All sides are congruent						
Both pairs of opposite sides are congruent						
Both pairs of opposite sides are parallel						
Exactly one pair of opposite sides are parallel						
All angles are congruent						
Exactly one pair of opposite angles are congruent						
Diagonals are perpendicular						
Diagonals are congruent						
Diagonals bisect each other						

Put an X in the box if the shape always has the given property.

Property	Parallelogram	Rectangle	Rhombus	Square	Kite	Trapezoid
All sides are congruent			X	X		
Both pairs of opposite sides are congruent	X	X	X	X		
Both pairs of opposite sides are parallel	X	X	X	X		
Exactly one pair of opposite sides are parallel						X
All angles are congruent		X		X		
Exactly one pair of opposite angles are congruent					X	
Diagonals are perpendicular			X	X	X	
Diagonals are congruent	X	X	X	X		X*
Diagonals bisect each other	X	X	X	X		

Pairs for Project

Sam, Charlene, and Victoria

Benji and Sarah

Heisu and Annie

Kevin, Selina, and Eleanor

Via and Poe

Juyeon and Ena

Lily and Christina

Section 8.5 - Kites and Trapezoids

Homework:

page 546: 7-15, 18-23, 25-29, 35, 36 (22 problems)
Draft your flow charts