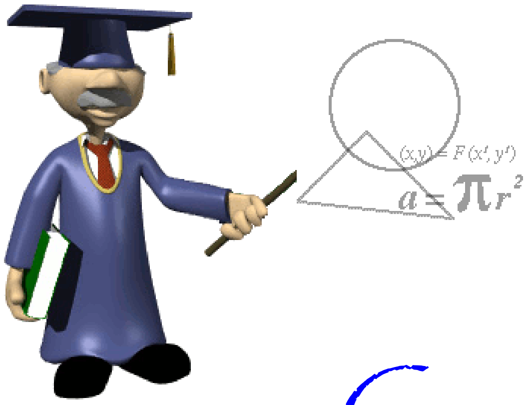
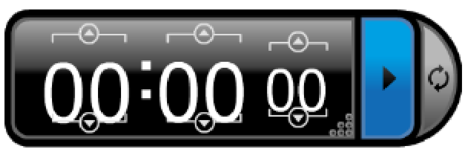
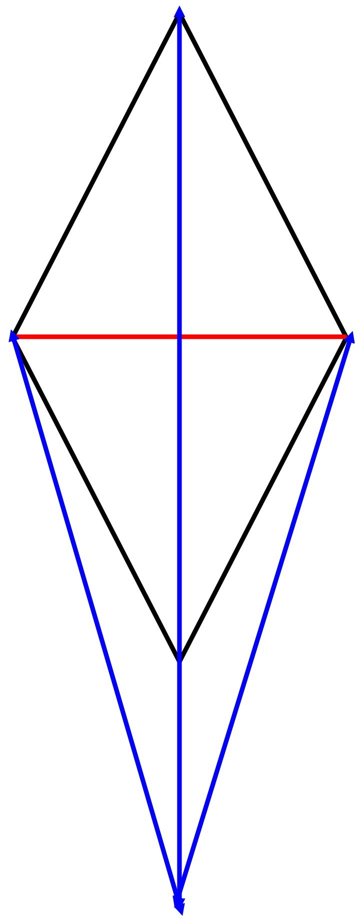


Good Morning!



What is the difference between a rhombus and a kite (think about the diagonals)



Parts of a Trapezoid...

Definition:

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Definition:

Quad w/only 1 pair opp sides ||

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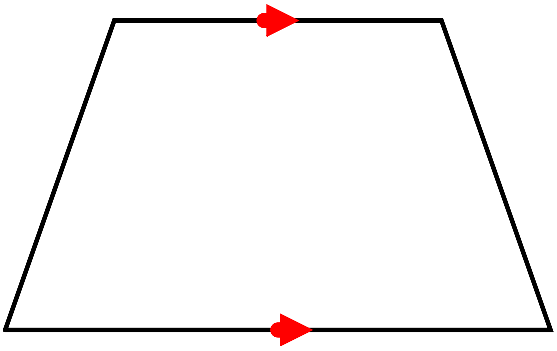

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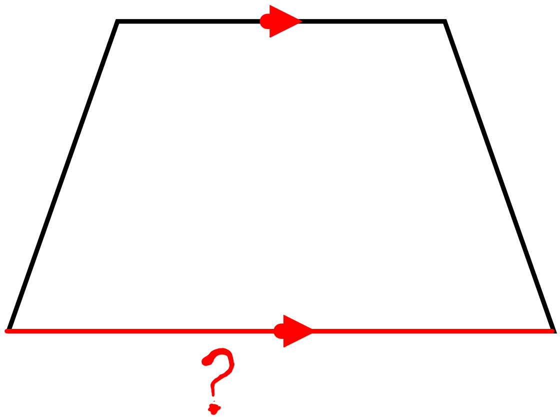

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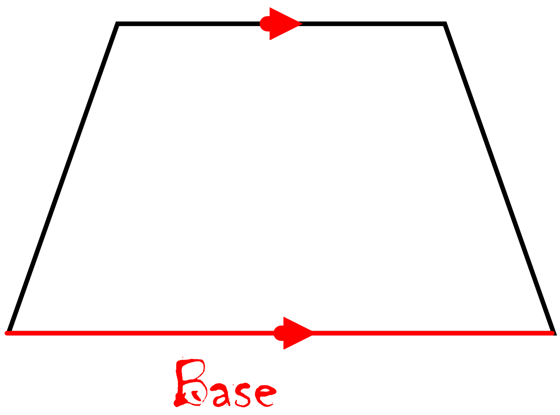

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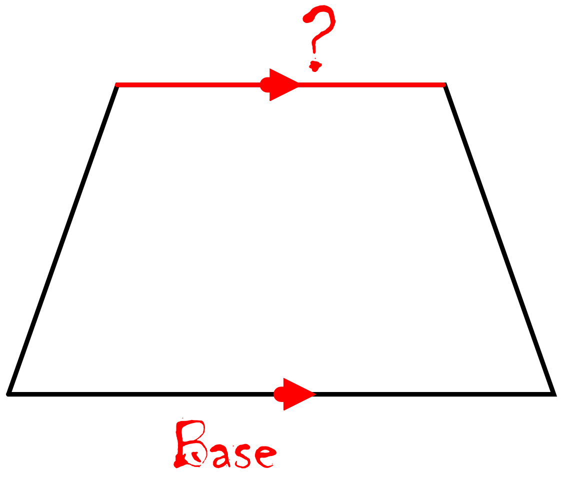

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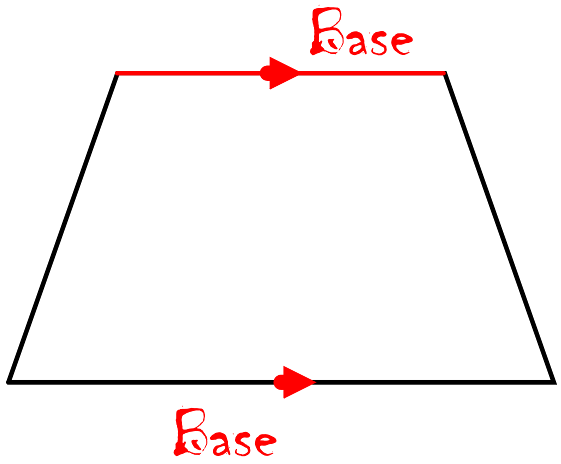

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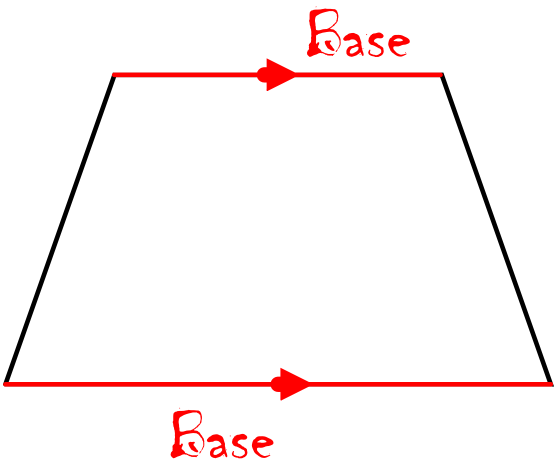

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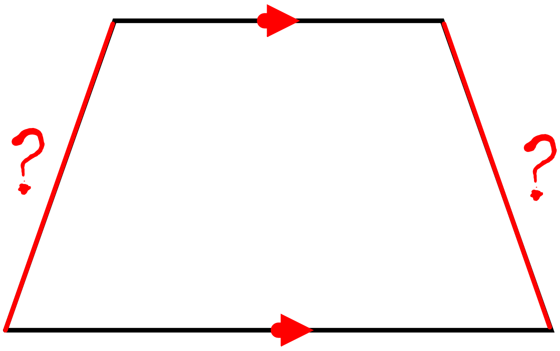

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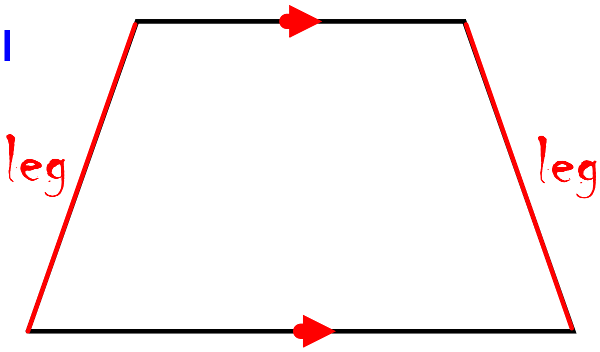

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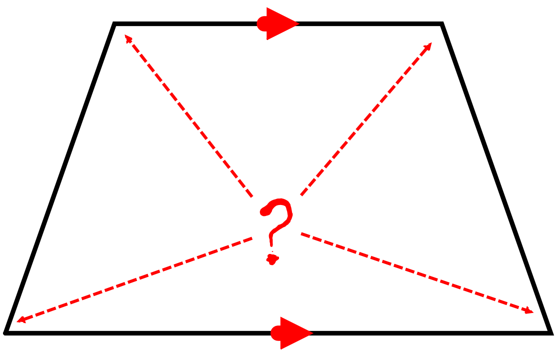

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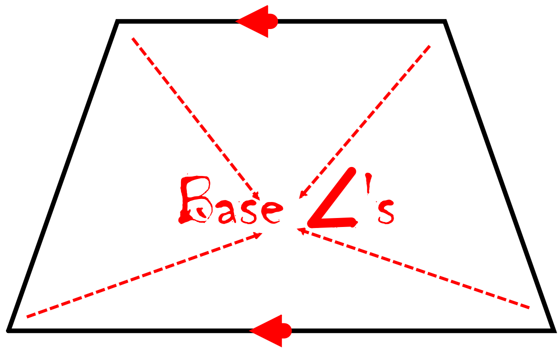

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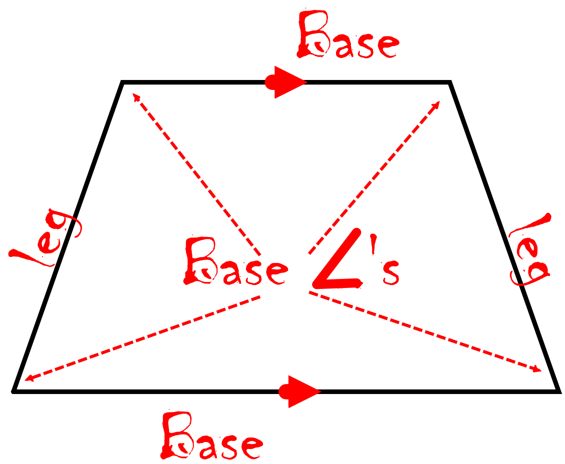
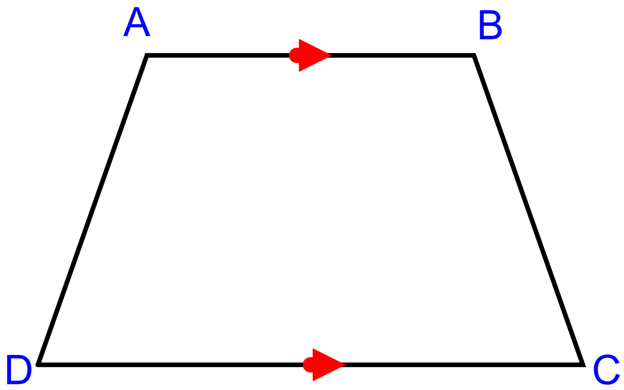


Properties of a Trapezoid...

What can you say about:

$\angle A$ & $\angle D$?

$\angle B$ & $\angle C$?



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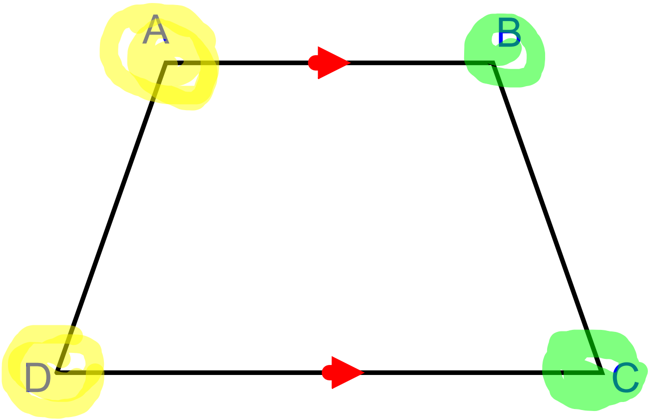

Properties of a Trapezoid...

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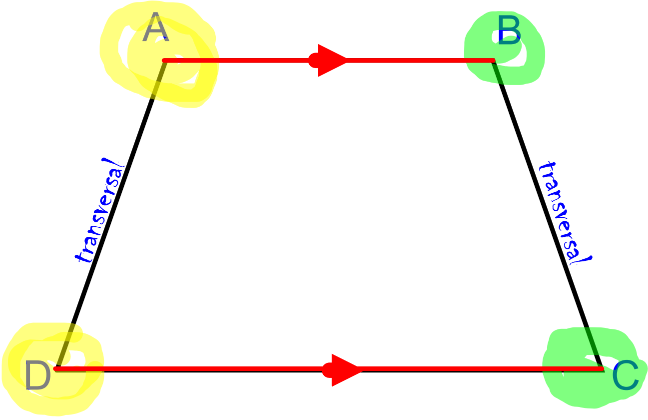

Properties of a Trapezoid...

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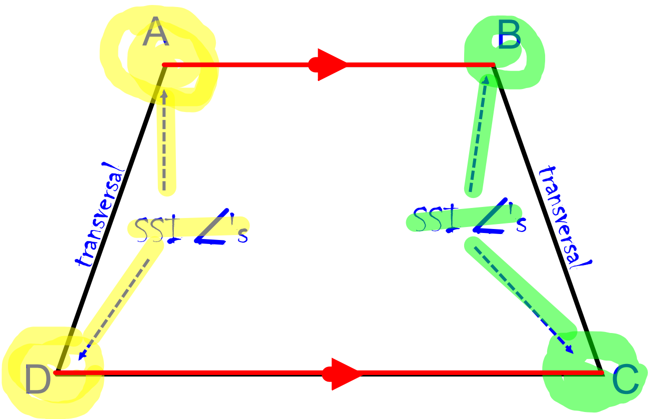
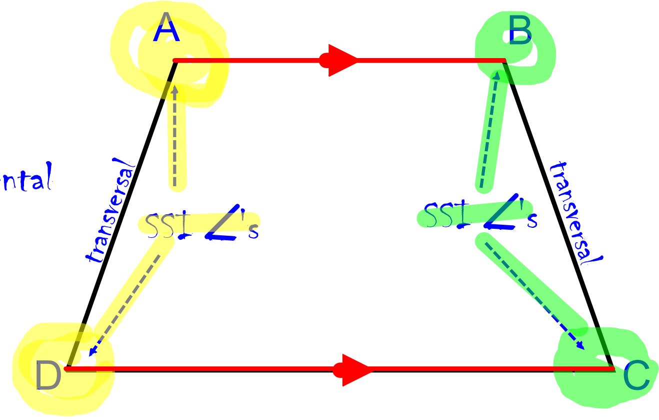


Properties of a Trapezoid...

What can you say about:

∠A & ∠D } are supplemental
∠B & ∠C }

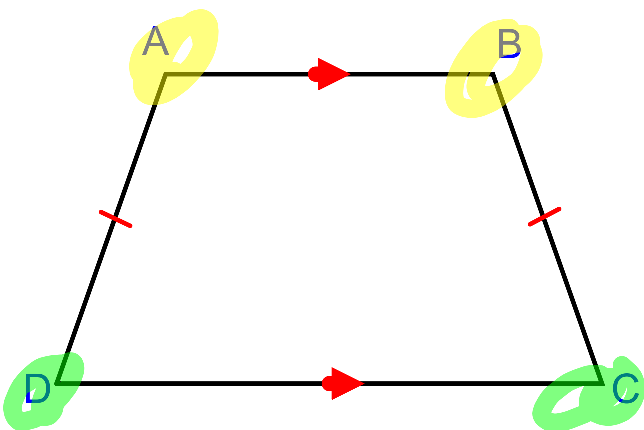


What would you conjecture about the base ∠'s of an Isosceles Trapezoid?

Conjecture:

∠A & ∠B ?

∠C & ∠D ?

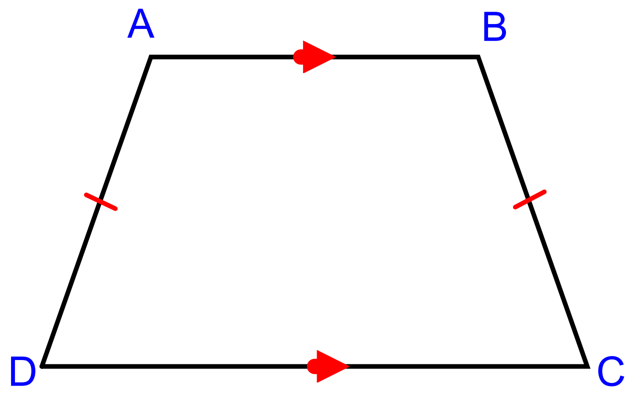


What would you conjecture about the base ∠'s of an Isosceles Trapezoid?

Conjecture:

$\angle A \cong \angle B$

$\angle C \cong \angle D$



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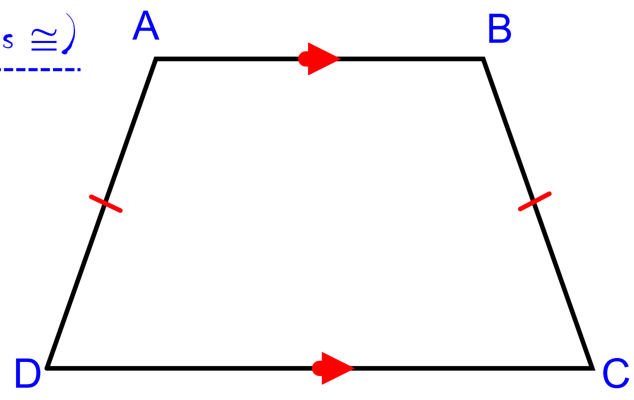
Given: Isos Trap ABCD, $\overline{AD} \cong \overline{BC}$, $\overline{AB} \parallel \overline{CD}$

Prove: $\angle A \cong \angle B$, $\angle C \cong \angle D$ (base ∠'s ≅)



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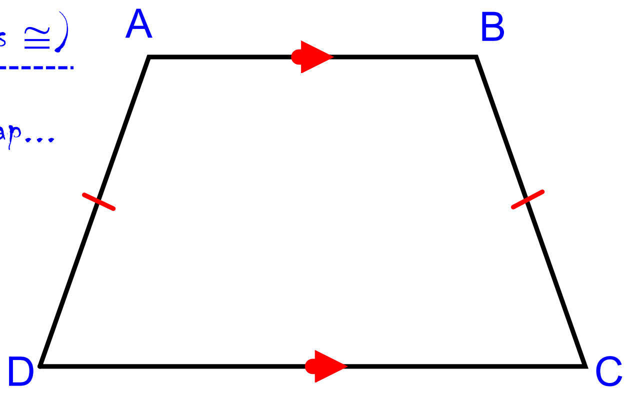
Construct a parallelogram inside the trap...



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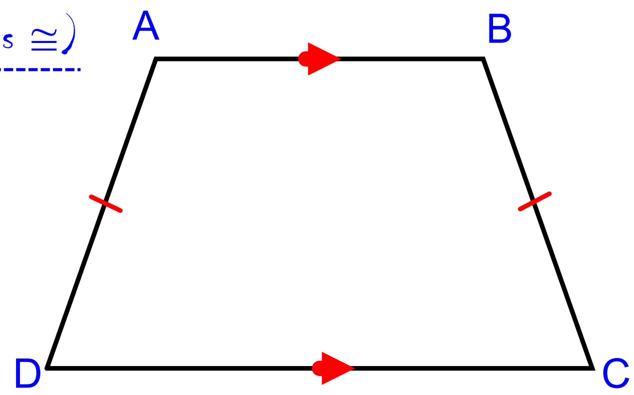
Prove: $\angle A \cong \angle B$, $\angle C \cong \angle D$ (base ∠'s ≅)

Construct pt E so $\overline{AE} \parallel \overline{BC}$



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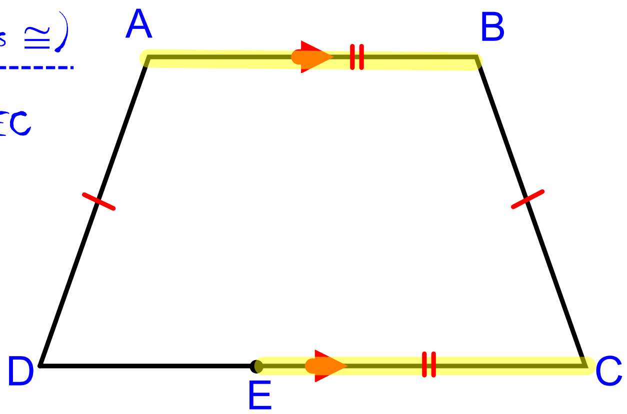
Prove: $\angle A \cong \angle B$, $\angle C \cong \angle D$ (base ∠'s ≅)

Construct pt E so $\overline{AE} \parallel \overline{BC}$ i.e. AB = EC



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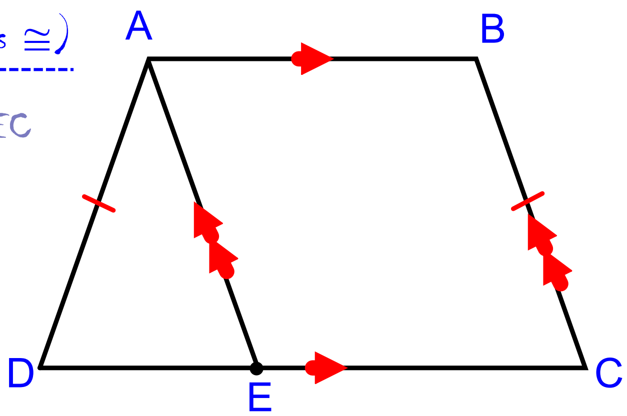

What would you conjecture about the base $\angle$'s of an Isosceles Trapezoid?

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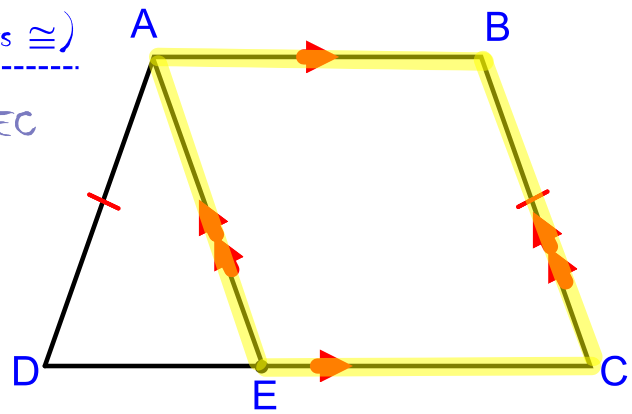
Prove: $\angle A \cong \angle B$, $\angle C \cong \angle D$ (base $\angle$'s $\cong$)

Construct pt E so $\overline{AE} \parallel \overline{BC}$ i.e. AB = EC

ABCE is a parallelogram (defn of $\square$)



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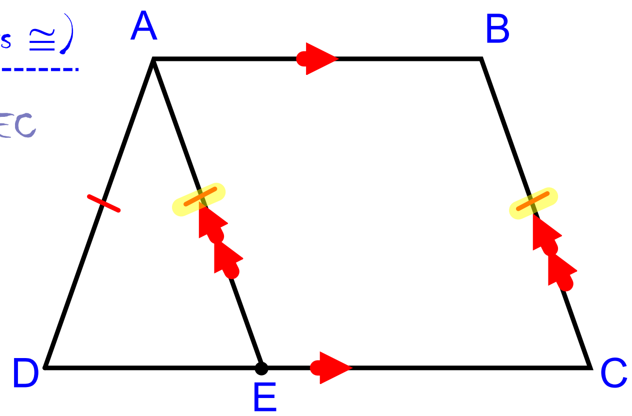

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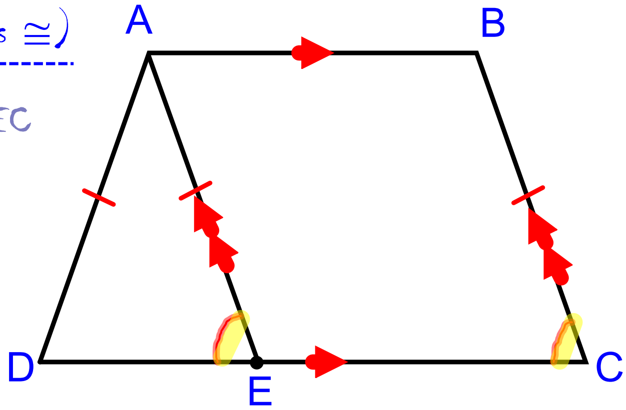
$\angle C \cong \angle AED$ (corr angle thm)



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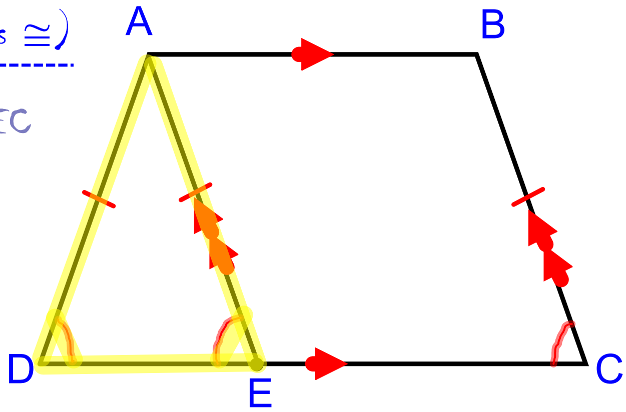

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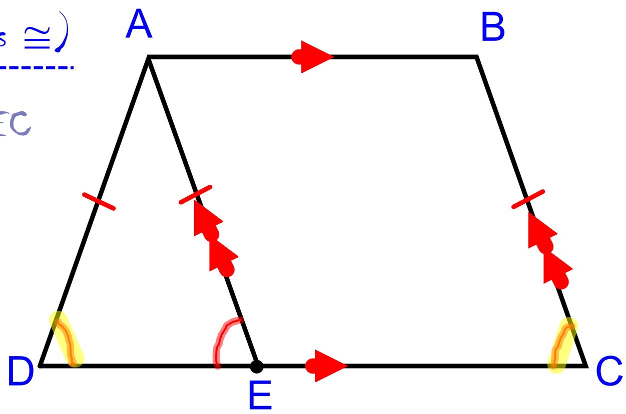
$\angle C \cong \angle D$ (trans POC)



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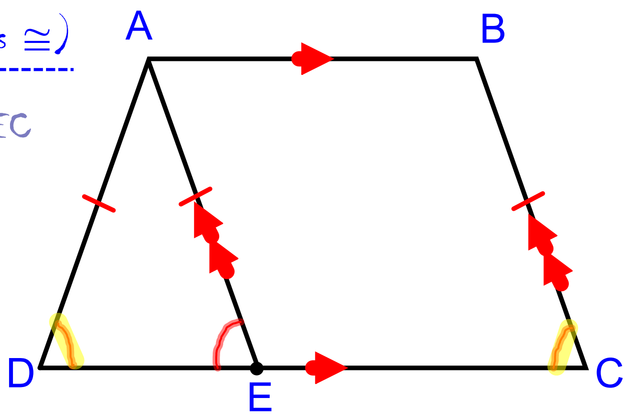

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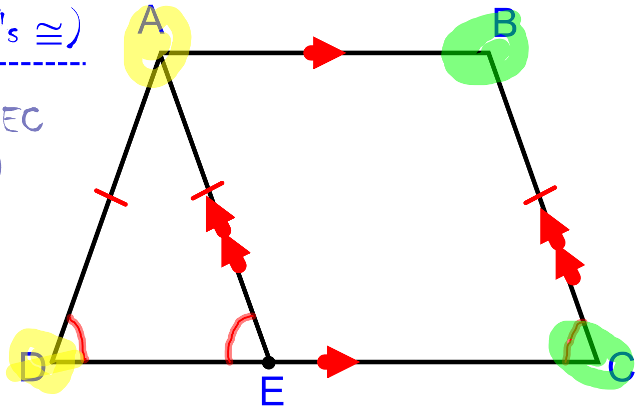

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$\angle C \cong \angle AED$ (corr angle thm)

$\angle AED \cong \angle D$ (isos △ thm)

$\angle C \cong \angle D$ (trans POC)

$\angle A$, $\angle D$ and $\angle B$, $\angle C$ are suppl pairs (SSI ∠ thm)

What would you conjecture about the base ∠'s of an Isosceles Trapezoid?

Given: Isos Trap ABCD, $\overline{AD} \cong \overline{BC}$, $\overline{AB} \parallel \overline{CD}$

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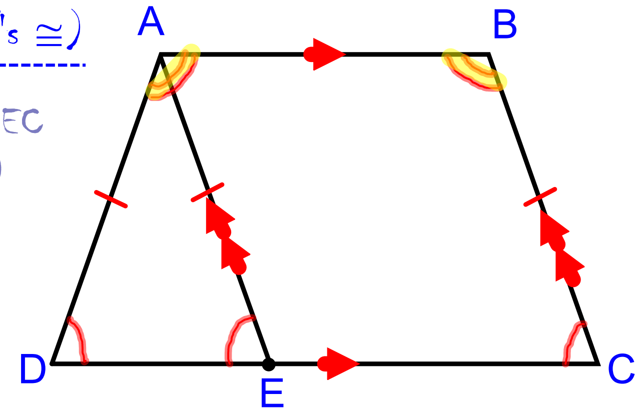

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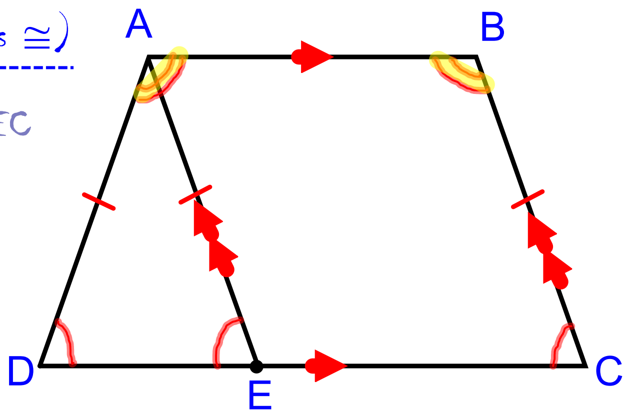
$\angle A \cong \angle B$ (thm 2-2, ≅ supplements thm)

What would you conjecture about the base ∠'s of an Isosceles Trapezoid?

Given: Isos Trap ABCD, $\overline{AD}\cong\overline{BC}$, $\overline{AB}\parallel\overline{CD}$

Prove: $\angle A\cong\angle B$, $\angle C\cong\angle D$ (base ∠'s ≅)



Construct pt E so $\overline{AE}\parallel\overline{BC}$ i.e. AB = EC

ABCE is a parallelogram (defn of ▱)

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QED

What would you conjecture about the base ∠'s of an Isosceles Trapezoid?

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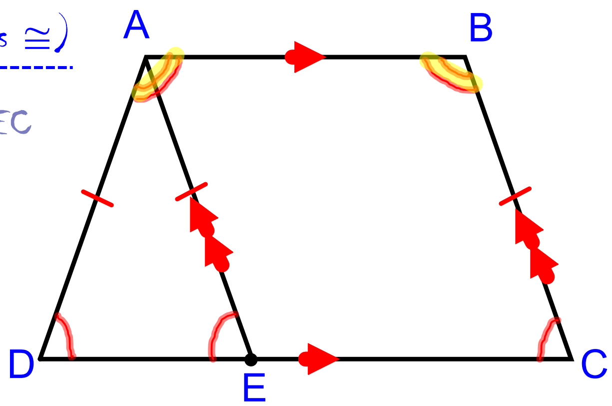

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$\angle AED\cong\angle D$ (isos Δ thm)

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$\angle A$, $\angle D$ and $\angle B$, $\angle C$ are suppl pairs (SSI ∠ thm)

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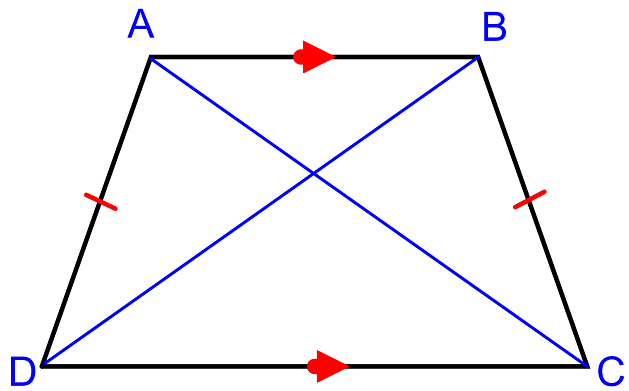
Theorem 6-15

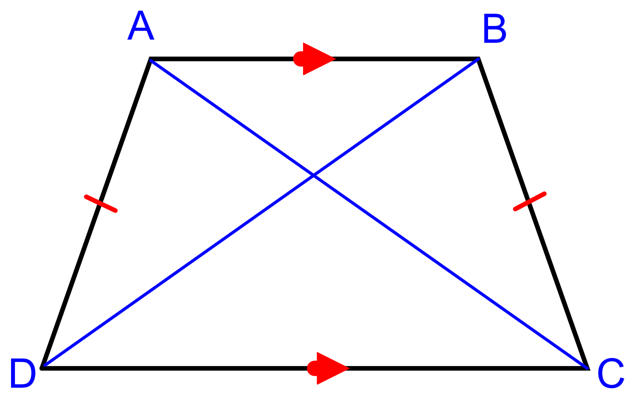
Both pair base ∠'s of isos trap are ≅

What would you conjecture about the diagonals of an Isosceles Trapezoid?



What would you conjecture about the diagonals of an Isosceles Trapezoid?

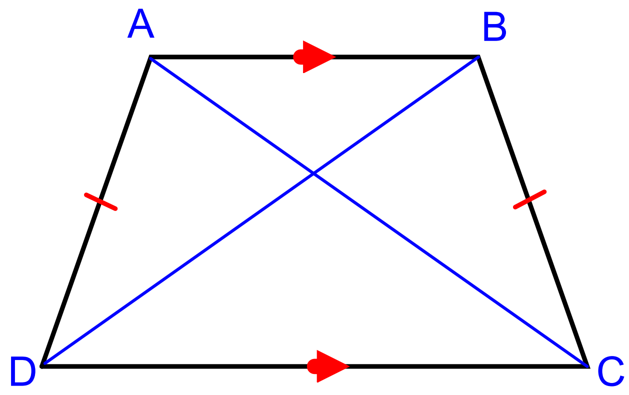
Conjecture: $\overline{AC} \cong \overline{BD}$



What would you conjecture about the diagonals of an Isosceles Trapezoid?

Conjecture: $\overline{AC} \cong \overline{BD}$

Prove it...

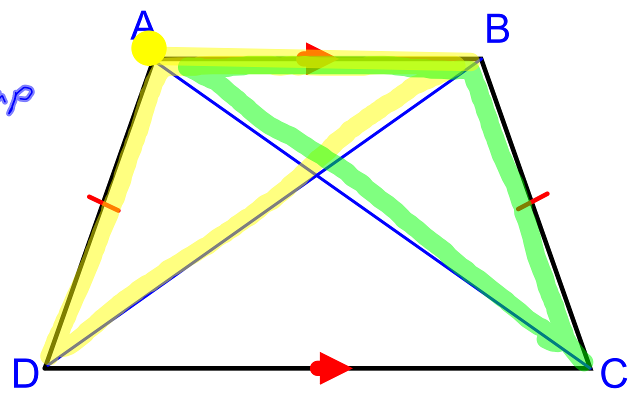


What would you conjecture about the diagonals of an Isosceles Trapezoid?

Conjecture: $\overline{AC} \cong \overline{BD}$

Prove it...

$\overline{AD} \cong \overline{BC}$ defn isos trap



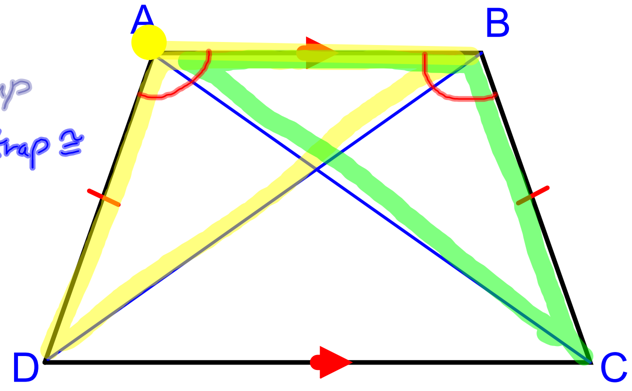
What would you conjecture about the diagonals of an Isosceles Trapezoid?

Conjecture: $\overline{AC} \cong \overline{BD}$

Prove it...

$\overline{AD} \cong \overline{BC}$ defn isos trap

$\angle DAB \cong \angle ABC$ Base ∠'s isos trap ≅



What would you conjecture about the diagonals of an Isosceles Trapezoid?

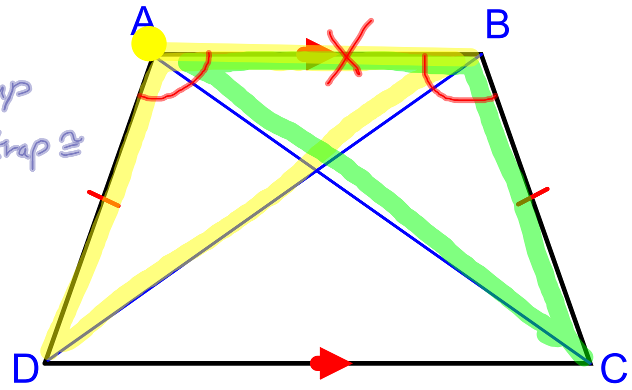
Conjecture: $\overline{AC} \cong \overline{BD}$

Prove it...

$\overline{AD} \cong \overline{BC}$ defn isos trap

$\angle DAB \cong \angle ABC$ Base ∠'s isos trap ≅

$\overline{AB} \cong \overline{AB}$ Refl POC



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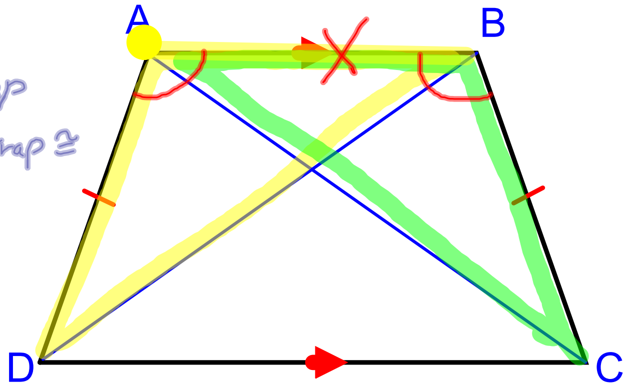
Conjecture: $\overline{AC} \cong \overline{BD}$

Prove it...

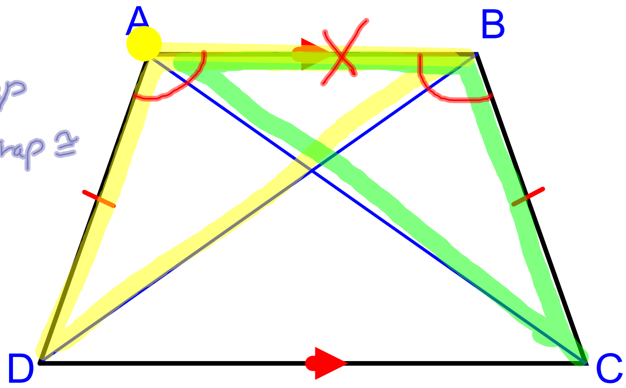


S	$\overline{AD} \cong \overline{BC}$	defn isos trap
A	$\angle DAB \cong \angle ABC$	Base ∠'s isos trap ≅
S	$\overline{AB} \cong \overline{AB}$	Refl POC
	$\triangle DAB \cong \triangle CBA$	SAS

What would you conjecture about the diagonals of an Isosceles Trapezoid?

Conjecture: $\overline{AC} \cong \overline{BD}$

Prove it...



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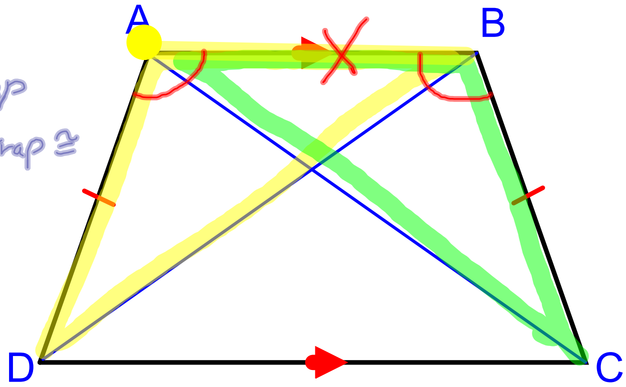

(S) $\overline{AD} \cong \overline{BC}$ defn isos trap

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QED

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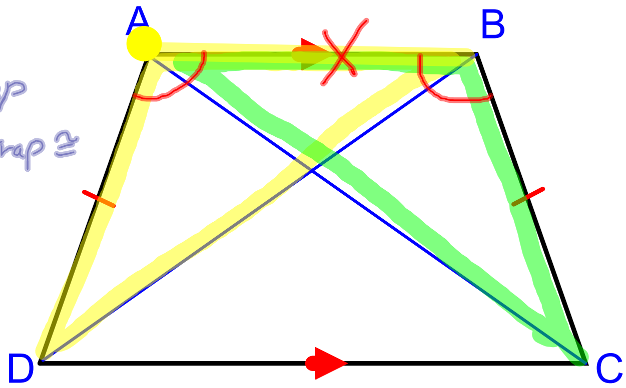

(S) $\overline{AD} \cong \overline{BC}$ defn isos trap

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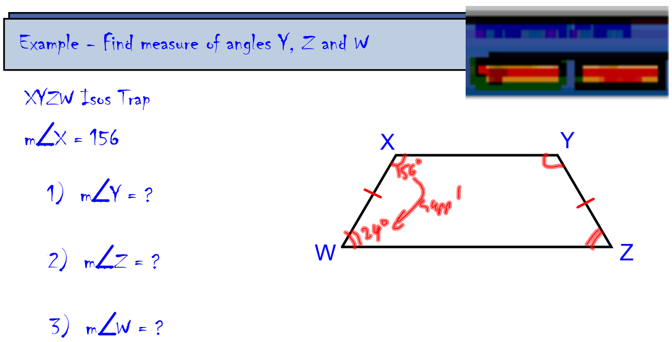
QED → Thm 6-16 diags of isos trap are ≅

Questions...

Next...

1   meas angle Y =

2 meas angle Z = [redacted]



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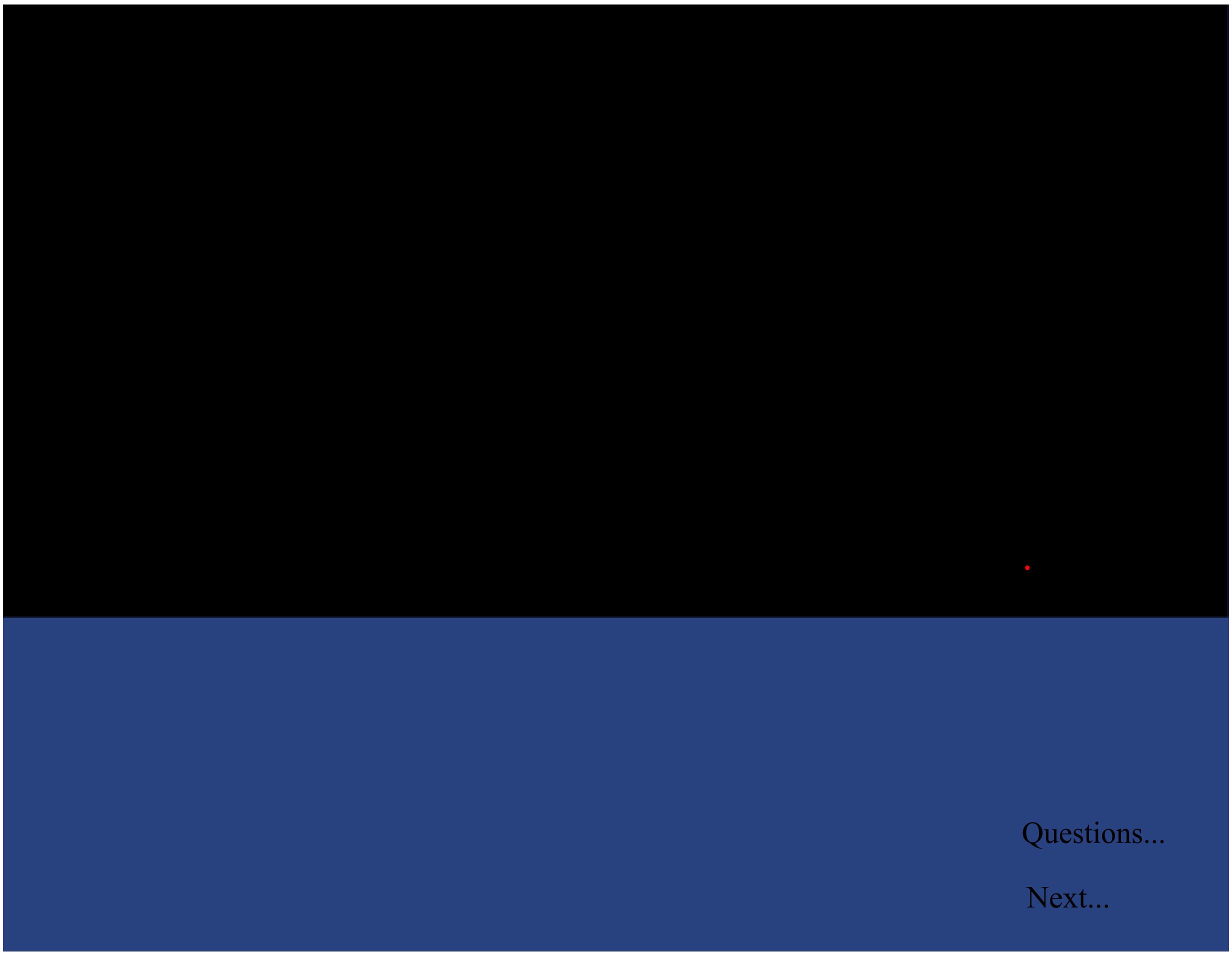


1 meas angle A =

2 **meas angle B =**

3 **meas angle C =**

Example - Find measure of angles of Isos Trap ABCD

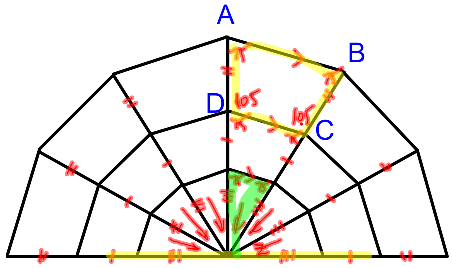
Spider web formed by layers of congruent isosceles trapezoids...

1) $m\angle A = ?$

2) $m\angle B = ?$

3) $m\angle C = ?$

4) $m\angle D = ?$



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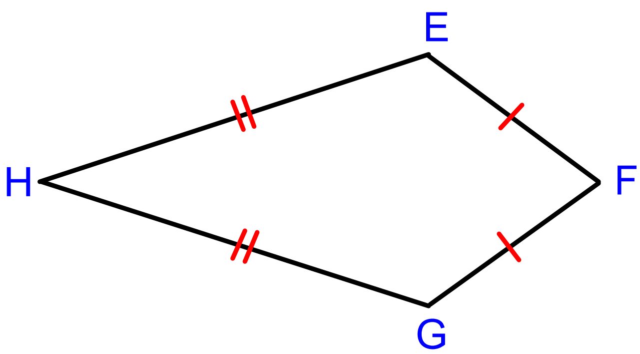
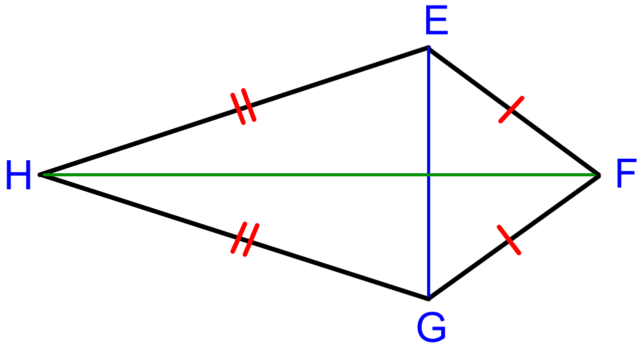
Kites

Properties



Kites

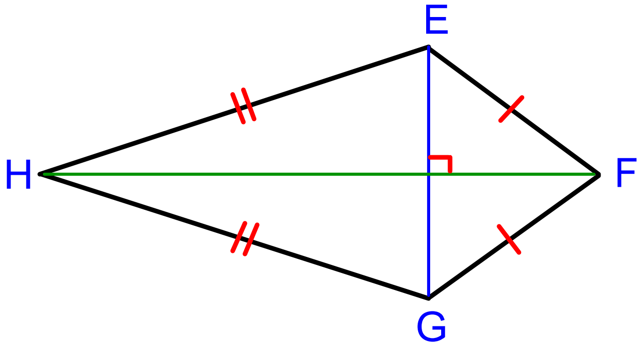
Form a conjecture about the diagonals...



Kites

Form a conjecture about the diagonals...

HF $\perp$ EG



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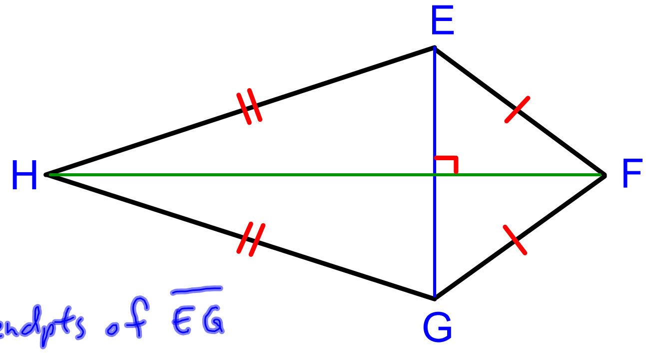

pt F is equidist fm endpts of $\overline{EG}$

Kites

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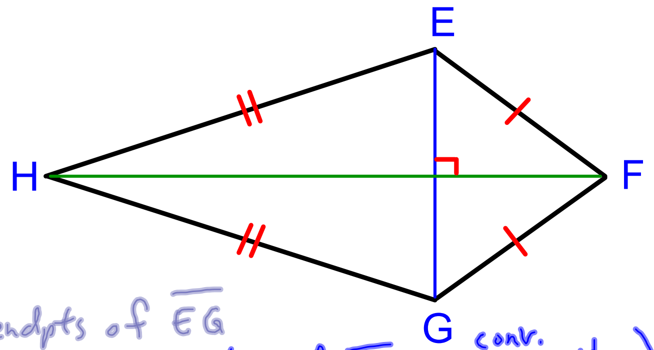

pt F is equidist fm endpts of $\overline{EG}$

pt F is on perpendicular bisector of $\overline{EG}$ (conv. $\perp$ bis thm)

Kites

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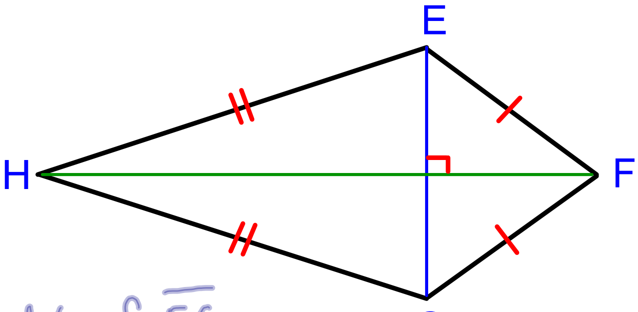

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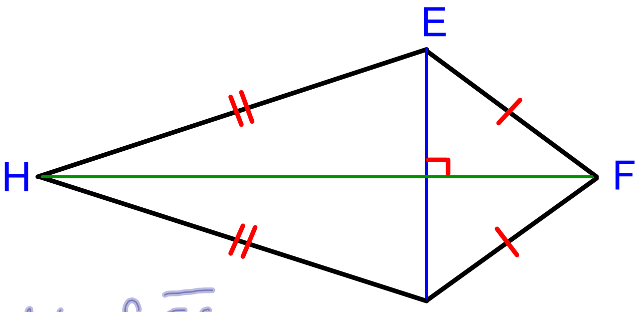
pt F is on perpendicular bisector of $\overline{EG}$ (conv. $\perp$ bis thm)

Likewise w/pt H.

Kites

Form a conjecture about the diagonals...

HF $\perp$ EG



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Likewise w/pt H.

$\therefore\ \overline{FH} \perp \overline{EG}$

Kites

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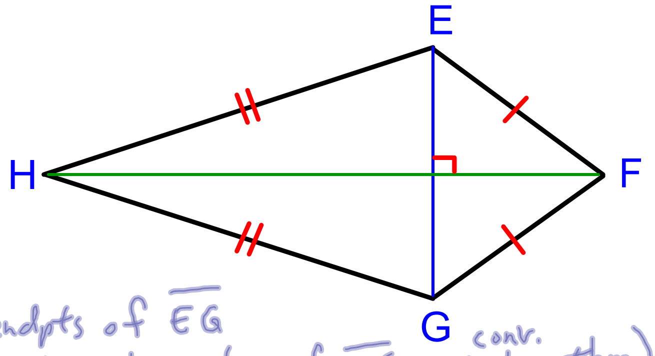

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Likewise w/pt H.

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QED

Kites

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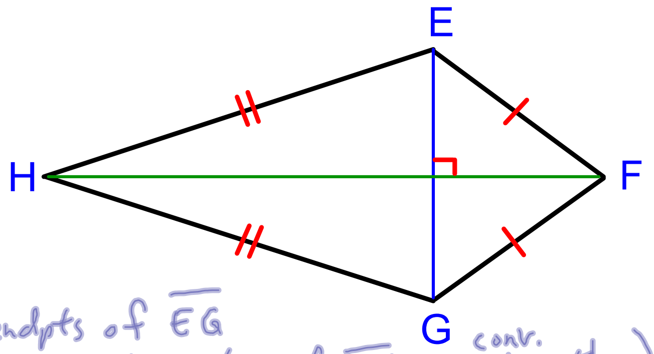

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QED → Thm 6-17

Kites

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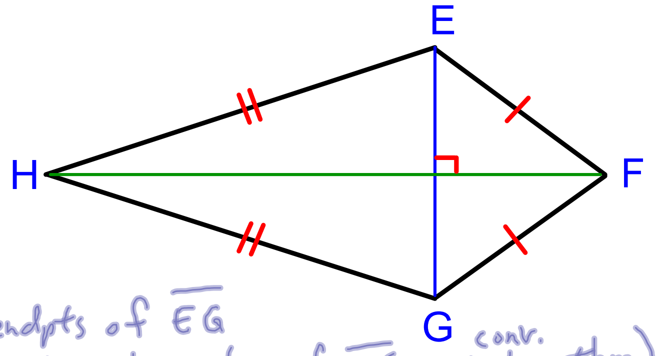
$HF \perp EG$



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Likewise w/pt H.

$\therefore \overline{FH} \perp \overline{EG}$

diags of kite $\perp$

QED → Thm 6-17

Questions...

Next...

1 meas angle 1 =

2 meas angle 2 =

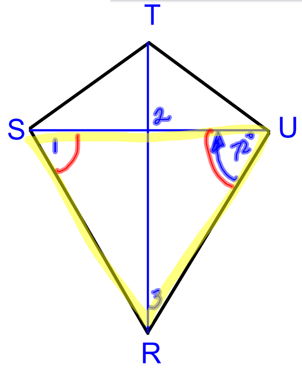
Example

Kite STUR...Find:

1) $m\angle 1 = ?$

2) $m\angle 2 = ?$

3) $m\angle 3 = ?$



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L6-5 HW Problems

Pg 322 #1-15 odd, 18,
21-25 odd,
27-29,
45-49