Geometry/Trig

Name: _____

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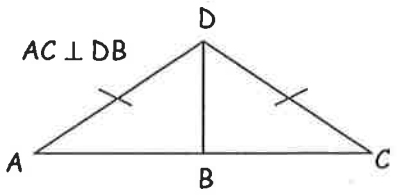
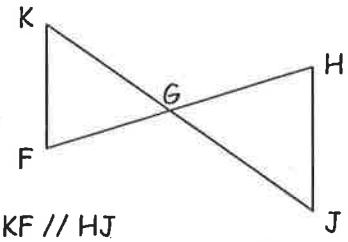
Date: _____

Part 3 – Determine whether the triangles are congruent. If they are, name the congruent triangles and the postulate or theorem you used. If there is not enough information, write none. Mark your diagrams.

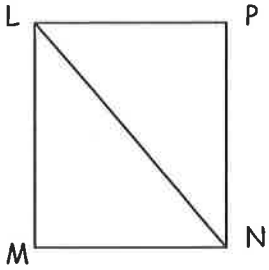


$\Delta ABD \cong \Delta CBD$
HL



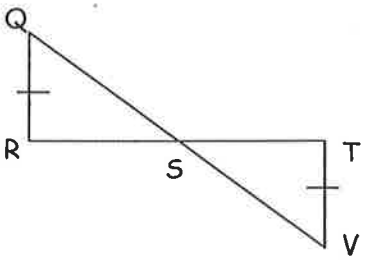
KF // HJ
G is the midpoint of FH

$\Delta KGF \cong \Delta JGH$
AAS or ASA



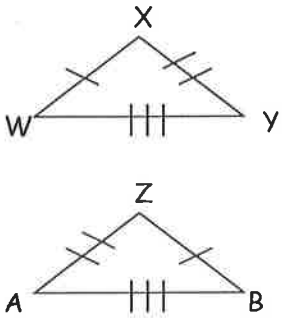
LM // PN
LP // MN

$\Delta LPN \cong \Delta NML$
ASA

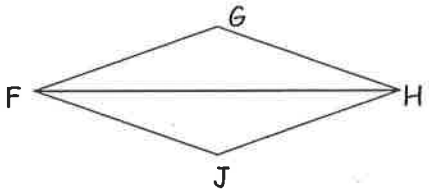


S is the midpoint of RT

None



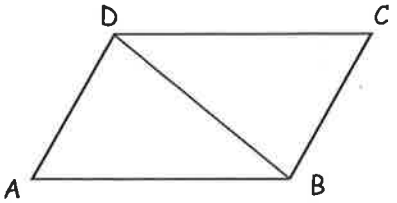
$\Delta WXY \cong \Delta BZA$
SSS



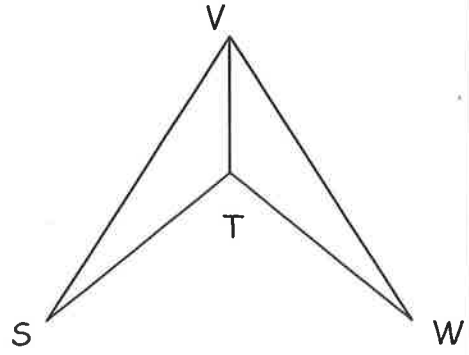
FG // JH; FG ≅ JH

$\Delta FGH \cong \Delta HJF$
SAS

AD // BC

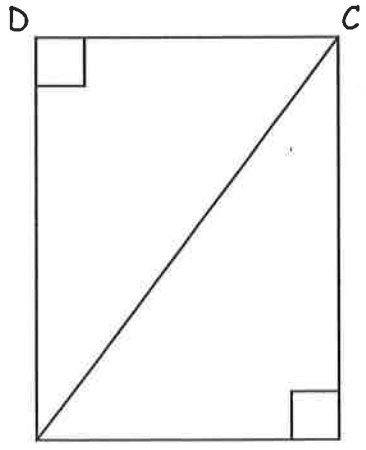


None



VT bisects ∠SVW

None



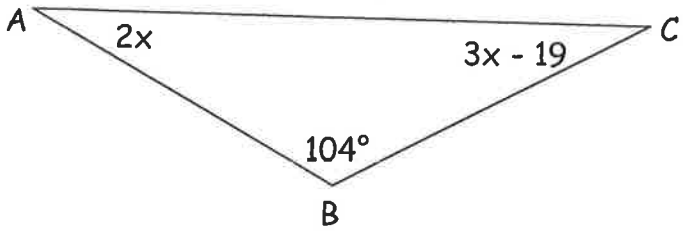
CB ≅ DA

$\Delta DAC \cong \Delta BCA$
HL

Geometry/Trig
Unit 4 Review Packet - page 3
Part 4 - Solve each algebra connection problem. Answer all questions.

Name: _____
Date: _____

1.



$2x + 3x - 19 + 104 = 180$
$5x = 95$
$x = 19$

$x = 19$

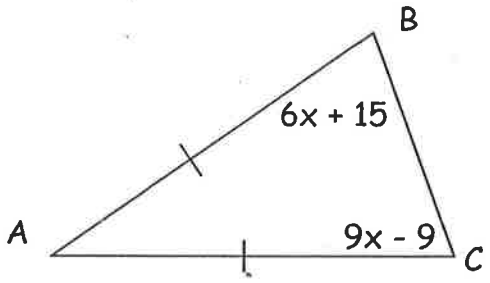
$m\angle A = 38$

$m\angle C = 38$

Classify the Δ by its sides: Isosceles

Classify the Δ by its angles: Obtuse

2.



$6x + 15 = 9x - 9$
$24 = 3x$
$x = 8$

Classify the triangle by its sides: Isosceles

What two sides are congruent? AB = AC

What two angles are congruent? $m\angle B = m\angle C$

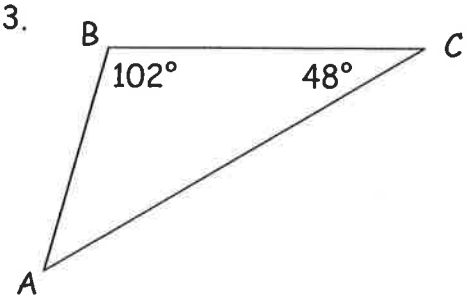
$x = 8$

$m\angle B = 63$

$m\angle C = 63$

$m\angle A = 54$

3.



$m\angle A = 30$

Are any of the angles congruent? No

Therefore, are any of the sides congruent? No

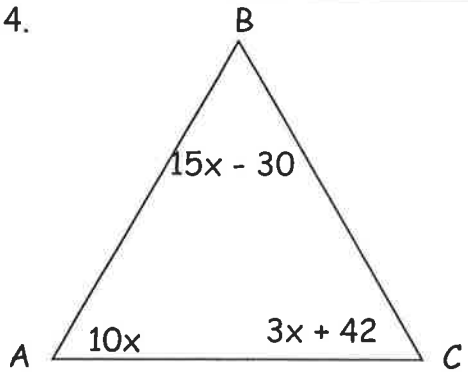
Classify the triangle by its sides: Scalene

Classify the triangle by its angles: Obtuse

Order the side lengths from longest to shortest:

Longest: AC Middle: AB Shortest: BC

4.



$15x - 30 + 10x + 3x + 42 = 180$
$28x + 12 = 180$
$x = 6$

$x = 6$

$m\angle A = 60$

$m\angle B = 60$

$m\angle C = 60$

Classify the Δ by its sides: Equilateral

Classify the Δ by its angles: Equiangular

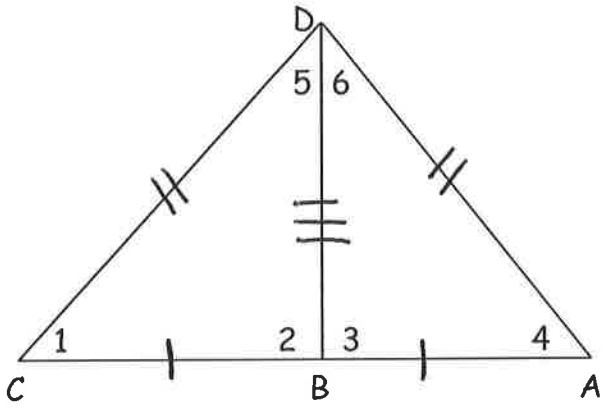
Name: _____

Date: _____

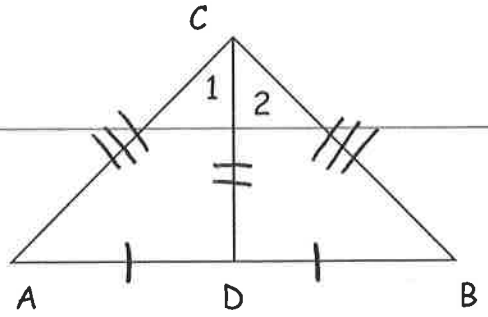
Given: B is the midpoint of CA;

$DC \cong DA$

Prove: $\angle 5 \cong \angle 6$



Statements	Reasons
1) B is the midpoint of CA	1) Given
(S) 2) $\overline{CB} \cong \overline{BA}$	2) Definition of a Midpoint
(S) 3) $\overline{DC} \cong \overline{DA}$	3) Given
(S) 4) $\overline{DB} \cong \overline{DB}$	4) Reflexive
5) $\Delta CBD \cong \Delta ABD$	5) SSS
6) $\angle 5 \cong \angle 6$	6) CPCTC



Given: D is the midpoint of AB;

$CA \cong CB$

Prove: CD bisects $\angle ACB$

Statements	Reasons
1) D is the midpoint of AB	1) Given
(S) 2) $\overline{AD} \cong \overline{DB}$	2) Definition of a Midpoint
(S) 3) $\overline{CA} \cong \overline{CB}$	3) Given
(S) 4) $\overline{CD} \cong \overline{CD}$	4) Reflexive
5) $\Delta ADC \cong \Delta BDC$	5) SSS
6) $\angle 1 \cong \angle 2$	6) CPCTC
7) CD bisects $\angle ACB$	7) Definition of a Angle Bisector

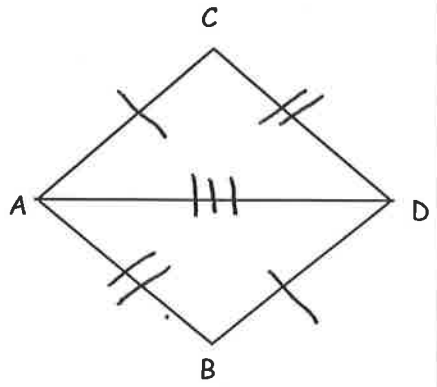
Name: _____

Date: _____

Given: $\overline{AC} \cong \overline{DB}$; $\overline{CD} \cong \overline{BA}$

Prove: $\angle C \cong \angle B$

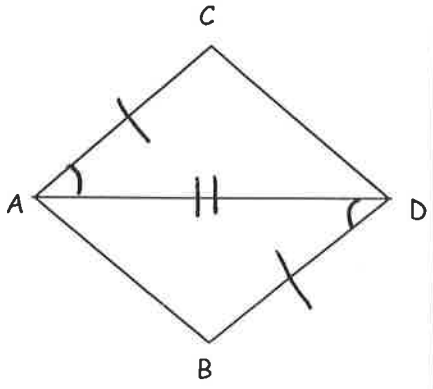
Statements	Reasons
1) $\overline{AC} \cong \overline{DB}$; $\overline{CD} \cong \overline{BA}$	1) Given
2) $\overline{AD} \cong \overline{AD}$	2) Reflexive
3) $\triangle ACD \cong \triangle DBA$	3) SSS
4) $\angle C \cong \angle B$	4) CPCTC



Given: $AC \cong DB$; $\angle CAD \cong \angle BDA$

Prove: $CD \cong BA$

Statements	Reasons
1) $AC = DB$; $\angle CAD \cong \angle BDA$	1) Given
2) $\overline{AD} \cong \overline{AD}$	2) Reflexive
3) $\triangle ACD \cong \triangle DBA$	3) SAS
4) $CD = BA$	4) CPCTC



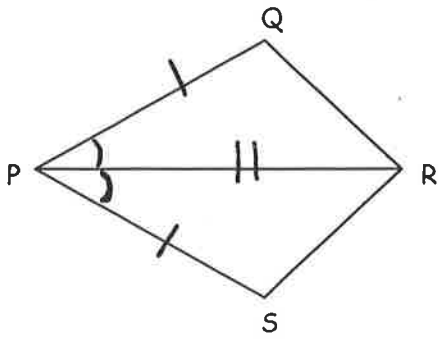
Name: _____

Date: _____

Given: PR bisects $\angle QPS$; $PQ \cong PS$

Prove: RP bisects $\angle QRS$

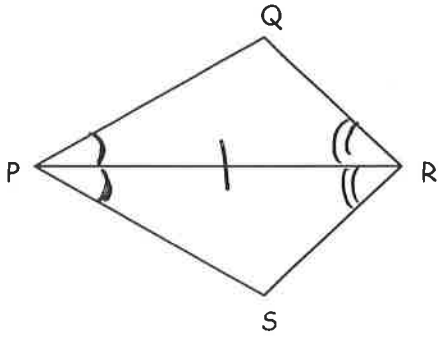
Statements	Reasons
1) PR bisects $\angle QPS$	1) Given
2) $\angle QPR \cong \angle SPR$	2) Definition of an Angle Bisector
3) $PQ = PS$	3) Given
4) $\overline{PR} \cong \overline{PR}$	4) Reflexive
5) $\Delta PQR \cong \Delta PSR$	5) SAS
6) $\angle QRP \cong \angle SRP$	6) CPCTC
7) RP bisects $\angle QRS$	7) Definition of an Angle Bisector



Given: PR bisects $\angle QPS$ and $\angle QRS$

Prove: $RQ \cong RS$

Statements	Reasons
1) PR bisects $\angle QPS$	1) Given
2) $\angle QPR \cong \angle SPR$	2) Definition of an Angle Bisector
3) RP bisects $\angle QRS$	3) Given
4) $\angle QRP \cong \angle SRP$	4) Definition of an Angle Bisector
5) $\overline{PR} \cong \overline{PR}$	5) Reflexive
6) $\Delta PQR \cong \Delta PSR$	6) ASA
7) $RQ = RS$	7) CPCTC



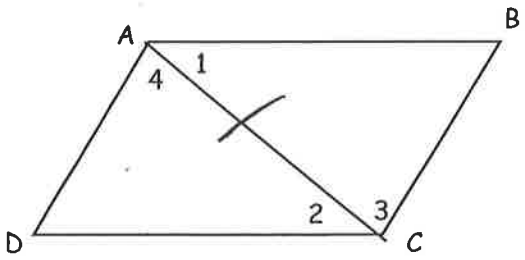
Name: _____

Date: _____

Given: AB // DC; AD // BC

Prove: $\Delta ABC \cong \Delta CDA$

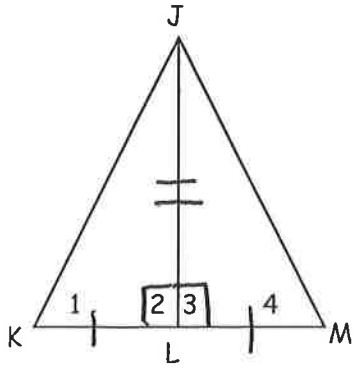
Statements	Reasons
1) AB // DC	1) Given
(A) 2) $\angle 1 \cong \angle 2$	2) If lines are parallel, then alternate interior angles are congruent.
3) AD // BC	3) Given
(A) 4) $\angle 3 \cong \angle 4$	4) If lines are parallel, then alternate interior angles are congruent.
(S) 5) $\overline{AC} \cong \overline{AC}$	5) Reflexive
6) $\Delta ABC \cong \Delta CDA$	6) ASA



Given: $JL \perp KM$; L is the midpoint of KM

Prove: $\Delta JLK \cong \Delta JLM$

Statements	Reasons
1) $JL \perp KM$	1) Given
2) $\angle 2$ and $\angle 3$ are right angles	2) Definition of Perpendicular Lines
3) $m\angle 2 = 90$; $m\angle 3 = 90$	3) Definition of Right Angles
(A) 4) $m\angle 2 = m\angle 3$	4) Substitution
5) L is the midpoint of KM	5) Given
(S) 6) KL = ML	6) Definition of a Midpoint
(S) 7) JL = JL	7) Reflexive
8) $\Delta JLK \cong \Delta JLM$	8) SAS



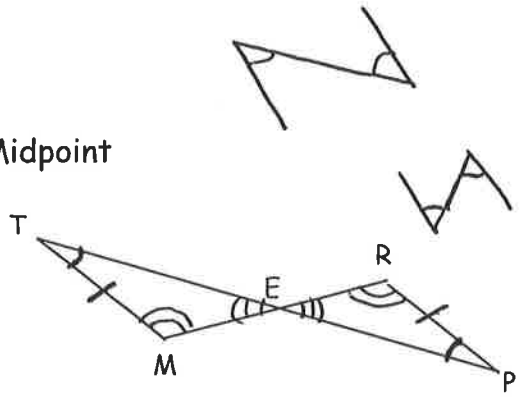
Name: _____

Date: _____

Given: $TM \cong PR$; $TM \parallel RP$

Prove: E is the midpoint of TP

Statements	Reasons
1) $\overline{TM} \cong \overline{PR}$	1) Given
2) $TM \parallel RP$	2) Given
3) $\angle T \cong \angle P$; $\angle M \cong \angle R$	3) If lines are parallel, then alternate interior angles are congruent.
4) $\triangle TEM \cong \triangle PER$	4) ASA
5) $TE = EP$	5) CPCTC
6) E is the midpoint of TP	6) Definition of a Midpoint



* Could have used vertical angles instead of one of these pairs and then used AAS for Reason #4

Given: $\angle C$ & $\angle D$ are right angles; $AD \cong BC$

Prove: $\triangle BAD \cong \triangle ABC$

Statements	Reasons
1) $\angle C$ & $\angle D$ are right angles	1) Given
2) $\overline{AD} \cong \overline{BC}$	2) Given
3) $\overline{AB} \cong \overline{AB}$	3) Reflexive
4) $\triangle BAD \cong \triangle ABC$	4) HL

right
Leg
hypotenuse