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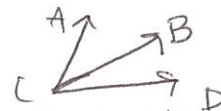
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Chapter 4-Holt Group Review

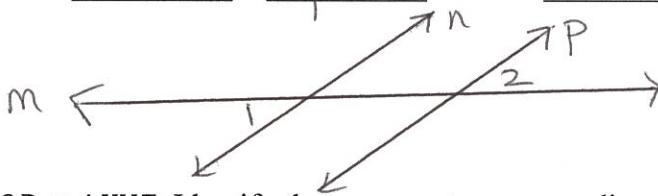
Fill in the blanks with the appropriate vocab term:

1. A name given to matching angles of congruent triangles is corresponding angles.
2. A side that is between two angles is called a(n) included side.
3. The two congruent angles in an isosceles triangle are called base angles.
4. The two congruent sides in an isosceles triangle are called legs.

What can you conclude from the given statement? Provide a reason why.

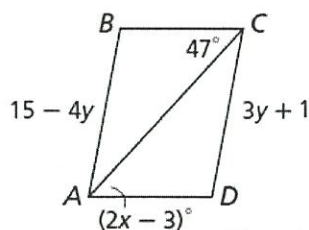


5. $\overline{CB}$ bisects $\angle ACD$, so $\angle ACB \cong \angle DCB$ because if $\angle$ bisector $\rightarrow 2 \cong \angle$'s.
6. $\overline{XY}$ bisects $\overline{ZW}$ at point A, so $\overline{ZA} \cong \overline{WA}$ because if seg bisector $\rightarrow 2 \cong$ segs.
7. $\angle 1 \cong \angle 2$ so n $\parallel$ p because if alt. ext. $\angle$'s $\cong \rightarrow \parallel$.

8. Given: $\triangle PQR \cong \triangle XYZ$. Identify the congruent corresponding parts.

a. $\overline{PR} \cong \overline{XZ}$

b. $\angle RPQ \cong \angle ZXY$

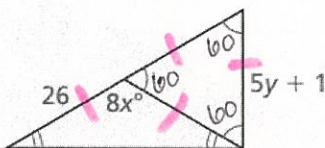
9. Given: $\triangle ABC \cong \triangle CDA$. Find x and y.

$$\begin{aligned} CD &= AB \\ 3y + 1 &= 15 - 4y \\ 7y &= 14 \\ \boxed{y} &= \boxed{2} \end{aligned}$$

$2x - 3 = 47$

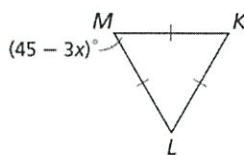
$2x = 50 \rightarrow \boxed{x = 25}$

11. Find the values of x and y in the diagram.



$$\begin{aligned} 5y + 1 &= 26 \\ 5y &= 25 \\ \boxed{y} &= \boxed{5} \end{aligned}$$

10. Find the value of x.



if $\triangle \rightarrow \triangle$
 all $\angle$'s in $\triangle = 60^\circ$

$45 - 3x = 60$

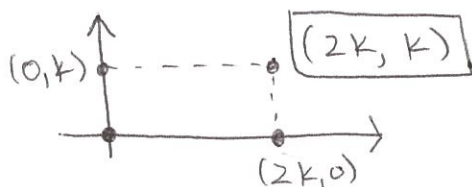
$-15 = 3x$

$\boxed{-5 = x}$

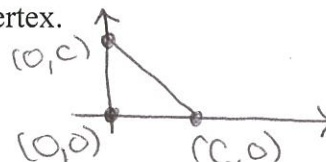
$180 - 60 = 8x$

$120 = 8x$

$\boxed{15 = x}$

12. A rectangle has vertices at $(0, 0)$, $(2k, 0)$, and $(0, k)$. Find the coordinates of the 4th vertex.

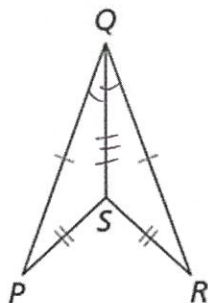
13. Place an isosceles triangle in the coordinate plane in a way that is convenient for finding side lengths. Assign coordinates (as variables!) to each vertex.



14. Write a two-column proof.

Given: $\overline{PQ} \cong \overline{RQ}$,
 $\overline{PS} \cong \overline{RS}$

Prove: $\overline{QS}$ bisects $\angle PQR$.

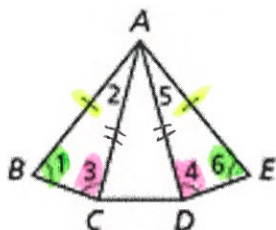


Statements	Reasons
① $\overline{PQ} \cong \overline{RQ}$ $\overline{PS} \cong \overline{RS}$	① Given
② $\overline{QS} \cong \overline{QS}$	② reflex. prop. $\cong$
③ $\triangle PSQ \cong \triangle RSQ$	③ SSS $\cong$ (1, 1, 2)
④ $\angle PQS \cong \angle RQS$	④ CPCTC
⑤ $\overline{QS}$ bisects $\angle PQR$	⑤ if 2 adj $\angle$'s $\cong \rightarrow \angle$ bisects

15. Write a two-column proof.

Given: $\angle 1 \cong \angle 6$, $\angle 4 \cong \angle 6$
 $\angle 1 \cong \angle 3$, $\overline{AB} \cong \overline{AE}$

Prove: $\triangle ACD$ is isosceles.



*see next page for alternate proofs

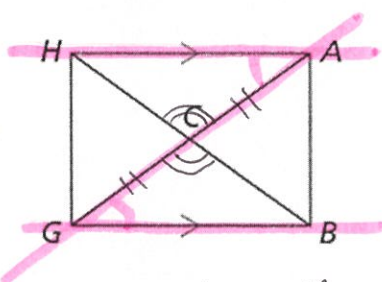
Statements	Reasons
① $\angle 1 \cong \angle 6$ i $\angle 4 \cong \angle 6$ ii $\overline{AB} \cong \overline{AE}$ $\angle 1 \cong \angle 3$ iii	① Given
② $\angle 3 \cong \angle 6$	② Trans. prop. $\cong$ (i + iii)
③ $\angle 3 \cong \angle 4$	③ Trans. prop. $\cong$ (ii + ii)
④ $\triangle ABC \cong \triangle AED$	④ AAS $\cong$ (1, 3, 1)
⑤ $\overline{AC} \cong \overline{AD}$	⑤ CPCTC
⑥ $\triangle ACD$ is isosceles	⑥ if $\triangle \rightarrow$ isosceles

16. Write a two-column proof.

Given: C is the midpoint
of $\overline{AG}$.

$\overline{HA} \parallel \overline{GB}$

Prove: $\triangle HAC \cong \triangle BGC$



*see next page for alternate proofs

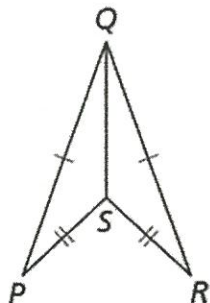
Statements	Reasons
① C is mdpt of $\overline{AG}$ $\overline{HA} \parallel \overline{GB}$	① Given
② $\overline{CA} \cong \overline{CG}$	② if mdpt $\rightarrow \cong$ segs
③ $\angle HAC \cong \angle BGC$	③ if $\parallel \rightarrow$ alt. int. $\angle$'s $\cong$
④ $\angle HCA \cong \angle BCG$	④ vert. $\angle$'s $\cong$
⑤ $\triangle HAC \cong \triangle BGC$	⑤ ASA $\cong$ (3, 2, 4)

14. Write a two-column proof.

1/2

Given: $\overline{PQ} \cong \overline{RQ}$,
 $\overline{PS} \cong \overline{RS}$

Prove: $\overline{QS}$ bisects $\angle PQR$.



Statements

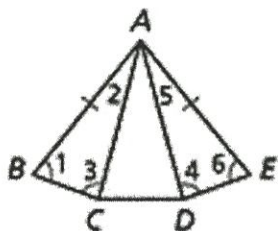
Reasons

15. Write a two-column proof.

1/2

Given: $\angle 1 \cong \angle 6$, $\angle 4 \cong \angle 6$
 $\angle 1 \cong \angle 3$, $\overline{AB} \cong \overline{AE}$

Prove: $\triangle ACD$ is isosceles.



#2

Statements

Reasons

① $\angle 1 \cong \angle 6$

① Given

$\angle 4 \cong \angle 6$

$\overline{AB} \cong \overline{AE}$

$\angle 1 \cong \angle 3$

② $\overline{AB} \cong \overline{AC}$ (b/c $\angle 1 \cong \angle 3$)

② if $\Delta \rightarrow \Delta$

$\overline{AD} \cong \overline{AE}$ (b/c $\angle 4 \cong \angle 6$)

③ $\overline{AC} \cong \overline{AE}$

③ Trans. prop. $\cong$

④ $\overline{AC} \cong \overline{AD}$

④ Trans. prop. $\cong$

⑤ $\triangle ACD$ is isosceles

⑤ if $\Delta \rightarrow$ isosceles

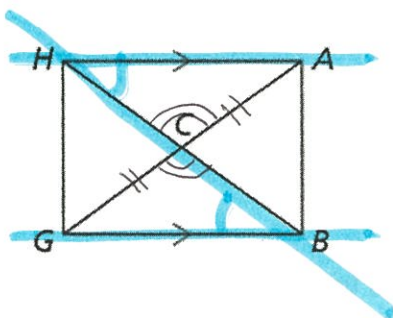
16. Write a two-column proof.

1/2

Given: C is the midpoint
of $\overline{AG}$.

$\overline{HA} \parallel \overline{GB}$

Prove: $\triangle HAC \cong \triangle BGC$



#2

Statements

Reasons

① C is mdpt of $\overline{AG}$

① Given

$\overline{HA} \parallel \overline{GB}$

② $\overline{CA} \cong \overline{CG}$

② if mdpt $\rightarrow \cong$ segs

③ $\angle HCA \cong \angle BCG$

③ vert. $\angle$'s $\cong$ thm

④ $\angle HAC \cong \angle GBC$

④ if $\parallel \rightarrow$ alt. int. $\angle$'s $\cong$

⑤ $\triangle HAC \cong \triangle BGC$

⑤ AAS $\cong$ (3, 4, 2)