Booklet Geometry L8

Thursday, April 1, 2021 11:24 PM

Booklet Geometry...

Solutions!

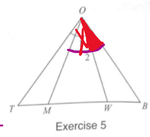
Geometry #8: Reasoning & Proof
Booklet

Cases → Conclusion

1. After Sara studies the number sequence
1, 1, 2, 3, 5, 8, 13, . . .
she concludes that 21 is the next number in the sequence. Which type of reasoning did Sara use to arrive at her conclusion?
(1) circular (3) deductive
(2) inductive (4) indirect

B. *Write a two-column proof.*

5. Given: $\angle 1 \cong \angle 2$
Prove: $\angle TOM \cong \angle BOW$

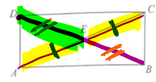


Exercise 5

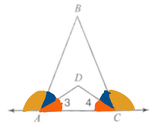
Statements	Reasons
$\angle 1 \cong \angle 2$	Given
$\angle MOW \cong \angle MOW$	Reflexive Property
$\angle 1 - \angle MOW \cong \angle 2 - \angle MOW$	Subtraction Property of Equality
$\angle TOM \cong \angle BOW$	Substitution

Statements	Reasons
$\overline{AC} \cong \overline{BD}$	Given
$\frac{1}{2}\overline{BD} \cong \overline{ED} \cong \overline{EB}$	Def of bisector
$\frac{1}{2}\overline{AC} \cong \overline{AE} \cong \overline{EC}$	Def of bisector
$\frac{1}{2}\overline{AC} \cong \frac{1}{2}\overline{BD}$	Multiplication of Property of equality
$\overline{AE} \cong \overline{ED}$	Substitution
$\triangle AED$ is isosceles	$\overline{AE} \cong \overline{ED}$ or Def. of Isosceles $\triangle$

6. Given: $\overline{AC}$ and $\overline{BD}$ bisect each other at E. $\overline{AC} \cong \overline{BD}$.
Prove: $\triangle AED$ is isosceles.



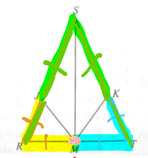
8. Given: $\angle 1 \cong \angle 2$. $\overline{AD}$ bisects $\angle BAC$, $\overline{CD}$ bisects $\angle BCA$.
Prove: $\angle 3 \cong \angle 4$.



Exercise 8

Statements	Reasons
$\angle 1 \cong \angle 2$	Given
$\angle BAC \cong \angle BCA$	Supplements of congruent angles are congruent
$\frac{1}{2}\angle BAC \cong \frac{1}{2}\angle BCA$	Multiplication property of equality
$\angle 3 \cong \angle 4$	Substitute!

9. Given: $\overline{SJ} \cong \overline{SK}$. $\overline{JR} \cong \overline{MR}$. $\overline{KT} \cong \overline{MT}$. M is the midpoint of $\overline{RT}$.
Prove: $\overline{SR} \cong \overline{ST}$



$\overline{JR} \cong \overline{MR}$
$\overline{KT} \cong \overline{MT}$
$\frac{1}{2}\overline{RT} = \overline{RM} = \overline{MT}$ (Def. of a midpoint)
$\overline{JR} \cong \overline{MR}$
$\overline{KT} \cong \overline{MT}$
$\overline{MR} \cong \overline{MT}$

$\angle 3 = \frac{1}{2}\angle BAC$
$\angle 4 = \frac{1}{2}\angle BCA$
Def. of angle bisector

S	R
$\overline{JR} \cong \overline{MR}$	Given
$\overline{KT} \cong \overline{MT}$	Given
$\frac{1}{2}\overline{RT} = \overline{RM} = \overline{MT}$	M is midpoint
$\overline{RM} \cong \overline{MT}$ $\overline{MT} \cong \overline{KT}$ $\overline{RM} \cong \overline{KT}$	Transitivity
$\overline{RM} \cong \overline{KT}$ $\overline{RM} \cong \overline{JR}$ $\overline{JR} \cong \overline{KT}$	Transitivity
$\overline{SJ} \cong \overline{SK}$	Given
$\overline{SJ} + \overline{JR} \cong$ $\overline{SK} + \overline{KT}$	Addition prop. of equality
$\overline{SR} \cong \overline{ST}$	Substitution