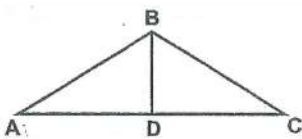


Proofs in Column Form



Given: D is the midpoint of \overline{AC} and $\overline{AB} \cong \overline{BC}$.
 Prove: $\triangle ABD \cong \triangle CBD$

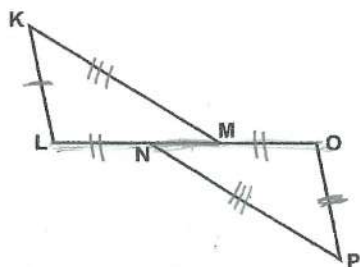
Statements	Reasons
1. D is the midpoint of \overline{AC}	1. Given
2. $\overline{AD} \cong \overline{CD}$	2. Definition of Midpoint
3. $\overline{AB} \cong \overline{CB}$	3. Given
4. $\overline{BD} \cong \overline{BD}$	4. Reflexive Property
5. $\triangle ABD \cong \triangle CBD$	5. SSS

In each proof the Statements are in order but the Reasons are scrambled. Write the Reasons in the correct order.

Given: \overline{GH} and \overline{FJ} bisect each other.
 Prove: $\triangle FGI \cong \triangle JHI$



Statements	Scrambled Reasons	Reasons
1. \overline{GH} and \overline{FJ} bisect each other.	1. Vertical angles are congruent.	2
2. $\overline{GI} \cong \overline{HI}$; $\overline{FI} \cong \overline{JI}$	2. Given	4
3. $\angle GIF \cong \angle HIJ$	3. SAS	1
4. $\triangle FGI \cong \triangle JHI$	4. Definition of Bisect	3



Given: $KL = PO$; $LN = OM$; $KM = PN$
 Prove: $\triangle KLM \cong \triangle PON$

Statements	Scrambled Reasons	Reasons
1. $LN = OM$	1. Addition Property of Equality	2
2. $LN + NM = NM + MO$	2. Given	4
3. $LN + NM = LM$; $NM + MO = NO$	3. SSS	1
4. $LM = NO$	4. Definition of Between	6
5. $KL = PO$; $KM = PN$	5. Given	5
6. $\triangle KLM \cong \triangle PON$	6. Substitution Property	3

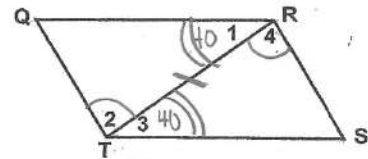
Key!

More Practice with Proofs

Complete the following proofs.

Given: $m\angle 1 = 40^\circ$; $m\angle 3 = 40^\circ$, $\angle 2 \cong \angle 4$

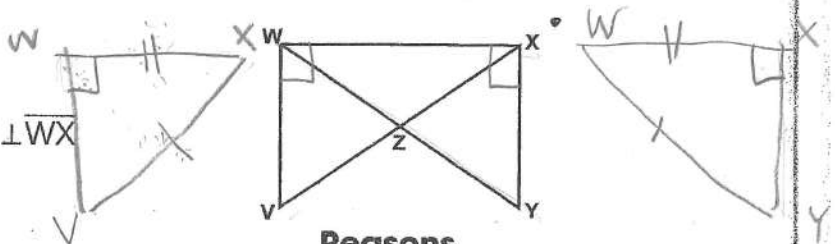
Prove: $\triangle RTQ \cong \triangle TRS$



Statements	Reasons
1. $m\angle 1 = 40^\circ$; $m\angle 3 = 40^\circ$, $\angle 2 \cong \angle 4$	1. Given
2. $\angle 1 \cong \angle 3$	2. Equal angles are congruent.
3. $\overline{RT} \cong \overline{TR}$	3. Reflexive
4. $\triangle RTQ \cong \triangle TRS$	4. ASA

Given: $\overline{WY} \cong \overline{XV}$; $\overline{VW} \perp \overline{WX}$; $\overline{YX} \perp \overline{WX}$

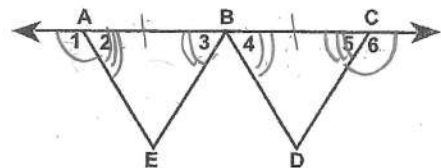
Prove: $\triangle XWV \cong \triangle WXY$



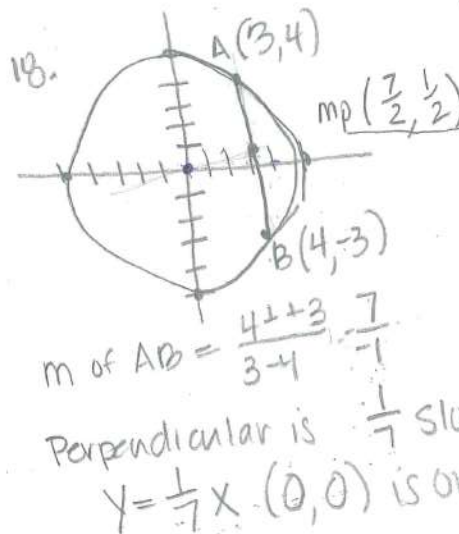
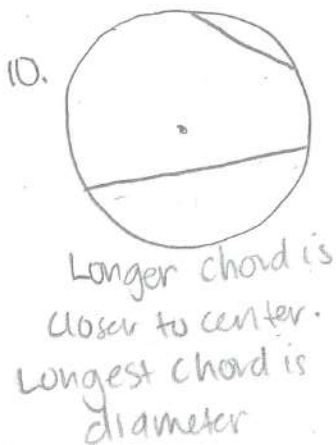
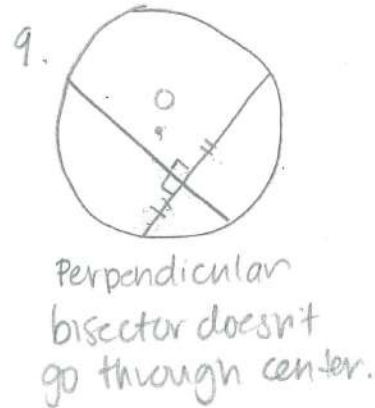
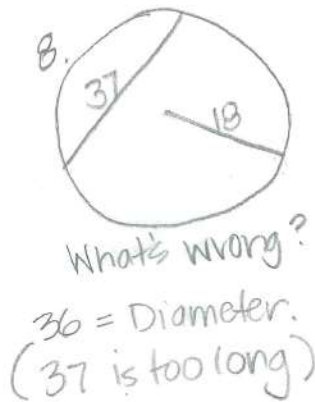
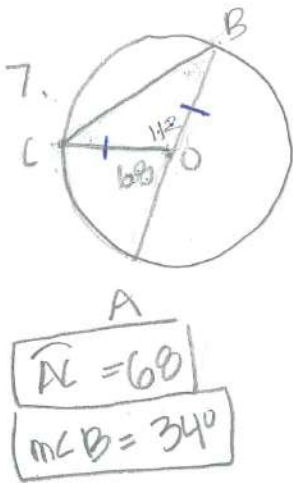
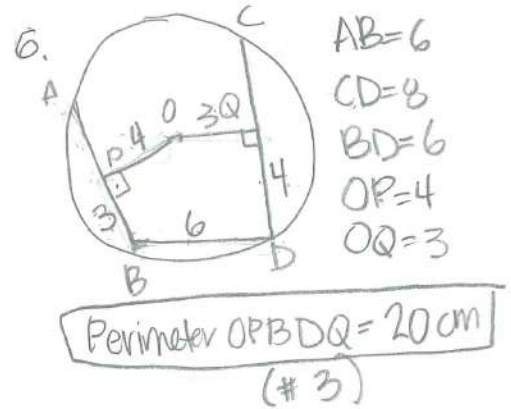
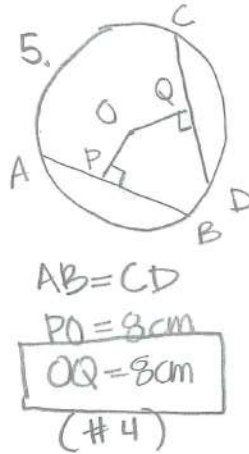
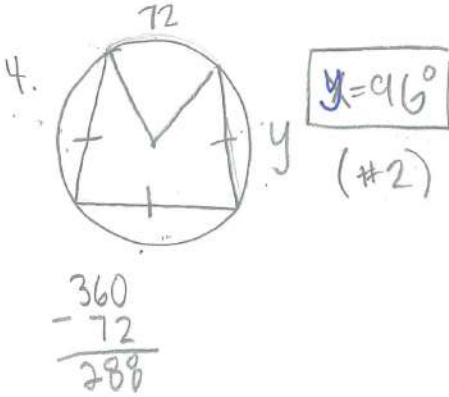
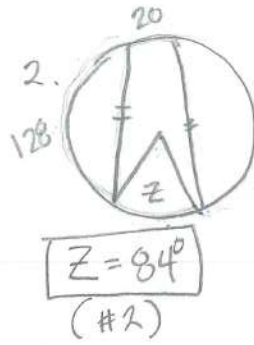
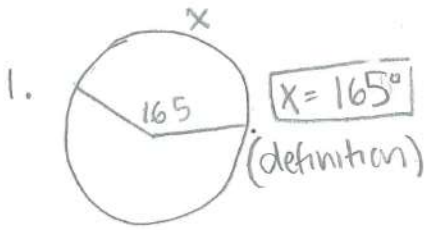
Statements	Reasons
1. $\overline{VW} \perp \overline{WX}$ and $\overline{YX} \perp \overline{WX}$	1. Given
2. $\angle VWX \cong \angle WXY = 90^\circ$	2. Definition Perpendicular Lines
3. $\triangle XWV$, $\triangle WXY$ are right \triangle s	3. Definition of right \triangle .
4. $\overline{WY} \cong \overline{XV}$	4. Given
5. $\overline{WX} \cong \overline{WX}$	5. reflexive.
6. $\triangle XWV \cong \triangle WXY$	6. HL

Given: $\angle 1 \cong \angle 6$; $\angle 3 \cong \angle 4$; B is the midpoint of \overline{AC}

Prove: $\triangle ABE \cong \triangle CBD$



Statements	Reasons
1. $\angle 1 \cong \angle 6$ $\angle 3 \cong \angle 4$ B is m.p of \overline{AC}	1. Given
2. $\overline{AB} \cong \overline{BC}$	2. Definition of midpoint
3. $\angle 2$ is supplementary to $\angle 1$	3. Definition of Supplementary
4. $\angle 5$ is supplementary to $\angle 6$	4. Definition of Supplementary
5. $\angle 2 \cong \angle 5$	5. Supplements of congruent angles are congruent.
6. $\triangle ABE \cong \triangle CBD$	6. ASA



- 19a. rhombus
- b. rectangle
- c. kite
- d. parallelogram

22. Why does $x = y$?

