

Name:

KEY

Hour:

Date:

Advanced Geometry Practice – Proofs Involving Congruent Triangles and CPCTC

Given: X is the midpoint of \overline{ST} . $\overline{RX} \perp \overline{ST}$ Prove: $\overline{RS} \cong \overline{RT}$ S X mdpt of \overline{ST} $\overline{SX} \cong \overline{XT}$ $\overline{RX} \perp \overline{ST}$ $\angle RXS$ + $\angle RXT$ Right \angle 's $\angle RXS \cong \angle RXT$ $\overline{RX} \cong \overline{RX}$ $\triangle RXS \cong \triangle RXT$ $\overline{RS} \cong \overline{RT}$ R

Given

Def. of mdpt

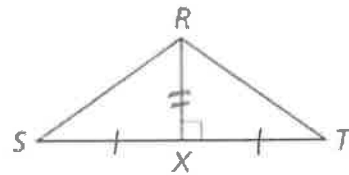
Given

Def. of \perp Rt $\angle \cong$ Thm

Reflexive

SAS

CPCTC

Given: J is the midpoint of \overline{KM} and \overline{NL} .Prove: $\overline{KL} \parallel \overline{MN}$ S J mdpt of \overline{KM} , \overline{NL} $\overline{KJ} \cong \overline{JM}$, $\overline{NJ} \cong \overline{JL}$ $\angle KJL \cong \angle MJN$ $\triangle KJL \cong \triangle MJN$ $\angle K LJ \cong \angle M NJ$ $\overline{KL} \parallel \overline{MN}$ R

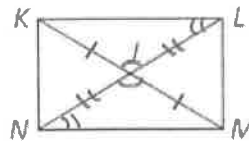
Given

Def. of mdpt

Vertical \angle 's Thm

SAS

CPCTC

Converse of Alt. Int \angle 's ThmGiven: $\overline{AC} \cong \overline{AD}$, $\overline{CB} \cong \overline{DB}$ Prove: \overline{AB} bisects $\angle CAD$.S $\overline{AC} \cong \overline{AD}$, $\overline{CB} \cong \overline{DB}$ $\overline{AB} \cong \overline{AB}$ $\triangle ABC \cong \triangle ABD$ $\angle CAB \cong \angle DAB$ \overline{AB} bisects $\angle CAD$ R

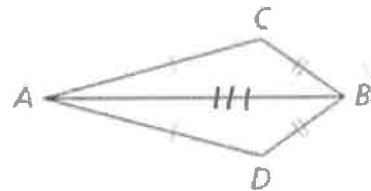
Given

Reflexive

SSS

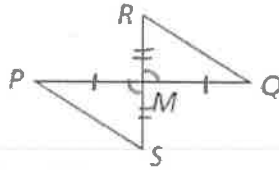
CPCTC

Def. of bisector



Given: M is the midpoint of \overline{PQ} and \overline{RS} .

Prove: $\overline{QR} \cong \overline{PS}$

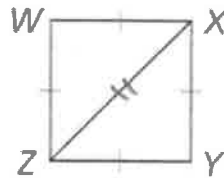


M mdpt of \overline{PQ} + \overline{RS}
 $\overline{PM} \cong \overline{MQ}$, $\overline{RM} \cong \overline{MS}$
 $\angle RMQ \cong \angle SMP$
 $\triangle PMS \cong \triangle QMR$
 $\overline{QR} \cong \overline{PS}$

\underline{R}
 Given
 Def. of mdpt
 Vert. \angle 's Thm
 SAS
 CPCTC

Given: $\overline{WX} \cong \overline{XY} \cong \overline{YZ} \cong \overline{ZW}$

Prove: $\angle W \cong \angle Y$



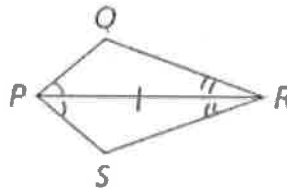
$\overline{WX} \cong \overline{XY} \cong \overline{YZ} \cong \overline{ZW}$
 $\overline{XZ} \cong \overline{XZ}$
 $\triangle WZX \cong \triangle YXZ$
 $\angle W \cong \angle Y$

\underline{R}
 Given
 Reflexive POC
 SSS
 CPCTC

← Be careful about how to list your congruence statement here

Given: \overline{PR} bisects $\angle QPS$ and $\angle QRS$.

Prove: $\overline{PQ} \cong \overline{PS}$

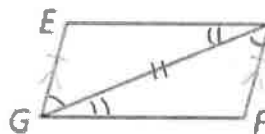


\overline{PR} bisects $\angle QPS$ + $\angle QRS$
 $\angle QPR \cong \angle SPR$, $\angle QRP \cong \angle SRP$
 $\overline{PR} \cong \overline{PR}$
 $\triangle QPS \cong \triangle SPR$
 $\overline{PQ} \cong \overline{PS}$

\underline{R}
 Given
 Def. of bisector
 Reflexive POC
 ASA
 CPCTC

Given: $\overline{EG} \parallel \overline{DF}$, $\overline{EG} \cong \overline{DF}$

Prove: $\overline{ED} \parallel \overline{GF}$



$\overline{EG} \parallel \overline{DF}$
 $\angle EGD \cong \angle FDG$
 $\overline{EG} \cong \overline{DF}$
 $\overline{DG} \cong \overline{DG}$
 $\triangle EGD \cong \triangle FDG$
 $\angle EDG \cong \angle FGD$
 $\overline{ED} \parallel \overline{GF}$

\underline{R}
 Given
 Alt int \angle 's Thm
 Given
 reflexive POC
 SAS
 CPCTC
 Converse of
 Alt. Int \angle 's
 Thm