

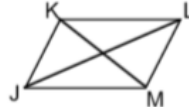
Parallelogram Proofs

Name Key Block _____

Complete the following proofs

1. Given: JKLM is a parallelogram
 Prove: $\angle LMJ \cong \angle JKL$ and $\angle KJM \cong \angle MLK$

Statement	Reason
JKLM is a \square	Given
$\overline{KL} \parallel \overline{JM}$ and $\overline{KJ} \parallel \overline{LM}$	Def. of \square
$\angle JLK \cong \angle LJM$	Alt. Int. \angle 's Thm.
$\angle JLM \cong \angle LJK$	Alt. Int. \angle 's Thm.
$\overline{JL} \cong \overline{LJ}$	Reflexive Property
$\triangle JLK \cong \triangle LJM$	ASA
$\angle LMJ \cong \angle JKL$	CPCTC
$\angle LKM \cong \angle JMK$	Alt. Int. \angle 's Thm.
$\angle LMK \cong \angle JKM$	Alt. Int. \angle 's Thm.
$\overline{KM} \cong \overline{MK}$	Reflexive Prop.
$\triangle LMK \cong \triangle JKM$	ASA
$\angle KJM \cong \angle MLK$	CPCTC



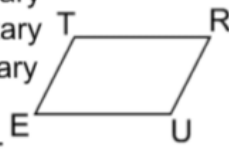
2. Given: MATH is a parallelogram
 Prove: $\overline{AT} \cong \overline{HM}$ and $\overline{TH} \cong \overline{MA}$

Statement	Reason
MATH is \square	Given
$\overline{AT} \parallel \overline{MH}$ and $\overline{TH} \parallel \overline{AM}$	Def. of \square
$\angle HAT \cong \angle AHM$	Alt. Int. \angle 's Thm.
$\angle AHT \cong \angle HAM$	Alt. Int. \angle 's Thm.
$\overline{AH} \cong \overline{HA}$	Reflexive Prop.
$\triangle HAT \cong \triangle AHM$	ASA
$\overline{AT} \cong \overline{HM}$	CPCTC
$\overline{TH} \cong \overline{MA}$	CPCTC



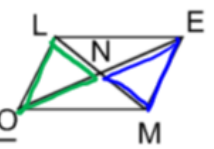
3. Given: TRUE is a parallelogram
 Prove: $\angle T$ and $\angle R$ are supplementary
 $\angle R$ and $\angle U$ are supplementary
 $\angle U$ and $\angle E$ are supplementary
 $\angle E$ and $\angle T$ are supplementary

Statement	Reason
TRUE is a \square	Given
$\overline{TR} \parallel \overline{EU}$ and $\overline{TE} \parallel \overline{RU}$	Def. of \square
$\angle T$ and $\angle R$ are supp.	Same Side Int. \angle 's Thm.
$\angle U$ and $\angle E$ are supp.	Same Side Int. \angle 's Thm.
$\angle R$ and $\angle U$ are supp.	Same Side Int. \angle 's Thm.
$\angle E$ and $\angle T$ are supp.	Same Side Int. \angle 's Thm.

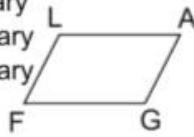


4. Given: LEMO is a parallelogram
 Prove: $\overline{LN} \cong \overline{MN}$ and $\overline{ON} \cong \overline{EN}$

Statement	Reason
LEMO is \square	Given
$\overline{LO} \parallel \overline{EM}$ and $\overline{OM} \parallel \overline{LE}$	Def. of \square
$\angle LEO \cong \angle MOE$	Alt. Int. \angle 's Thm.
$\angle LOE \cong \angle MEO$	Alt. Int. \angle 's Thm.
$\overline{LO} \cong \overline{ME}$	$\square \rightarrow$ Opp. Sides of are \cong
$\triangle LON \cong \triangle EMN$	ASA
$\overline{LN} \cong \overline{MN}$	CPCTC
$\overline{ON} \cong \overline{EN}$	CPCTC

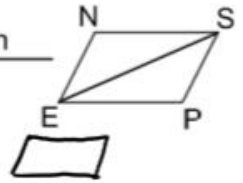


5. Given: FLAG is a parallelogram
 Prove: $\angle F$ and $\angle L$ are supplementary
 $\angle L$ and $\angle A$ are supplementary
 $\angle A$ and $\angle G$ are supplementary
 $\angle G$ and $\angle F$ are supplementary



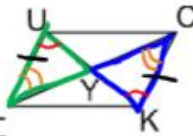
Statement	Reason
FLAG is \square	Given
$\overline{LA} \parallel \overline{FG}$ & $\overline{FL} \parallel \overline{GA}$	Given
$\angle F$ and $\angle L$ are supp $\angle L$ and $\angle A$ are supp. $\angle A$ and $\angle G$ are supp. $\angle G$ and $\angle F$ are supp.	Same Side Int. \angle 's Thm

6. Given: PENS is a parallelogram
 Prove: $\overline{PE} \cong \overline{NS}$ and $\overline{EN} \cong \overline{SP}$



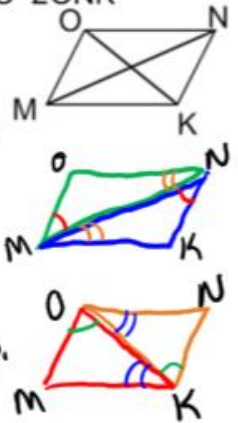
Statement	Reason
PENS is \square	Given
$\overline{NS} \parallel \overline{EP}$ & $\overline{EN} \parallel \overline{PS}$	Def. of \square
$\angle NES \cong \angle PSE$ & $\angle NSE \cong \angle PES$	Alt. Int. \angle 's Thm
$\overline{SE} \cong \overline{ES}$	Reflexive Property
$\triangle NES \cong \triangle PSE$	ASA
$\overline{PE} \cong \overline{NS}$ & $\overline{EN} \cong \overline{SP}$	CPCTC

7. Given: LUCK is a parallelogram
 Prove: $\overline{LY} \cong \overline{CY}$ and $\overline{UY} \cong \overline{KY}$



Statement	Reason
LUCK is \square	Given
$\overline{UL} \parallel \overline{CK}$	Def. of Parallelogram
$\overline{UL} \cong \overline{CK}$	$\square \rightarrow$ opp. sides \cong
$\angle LUK \cong \angle CKU$ $\angle ULC \cong \angle KCL$	Alt. Int. \angle 's Thm.
$\triangle ULY \cong \triangle KYC$	ASA
$\overline{LY} \cong \overline{CY}$ & $\overline{UY} \cong \overline{KY}$	CPCTC

8. Given: JKLM is a parallelogram
 Prove: $\angle MON \cong \angle NKM$ and $\angle KMO \cong \angle ONK$



Statement	Reason
JKLM is \square	Given
$\overline{ON} \parallel \overline{MK}$ & $\overline{MO} \parallel \overline{KN}$	Def. of \square
$\angle OMN \cong \angle KNM$ & $\angle MNO \cong \angle NKM$	Alt. Int. \angle 's Thm.
$\overline{MN} \cong \overline{NM}$	Reflexive Prop.
$\triangle MON \cong \triangle NKM$	ASA
$\angle MON \cong \angle NKM$	CPCTC
$\angle MKO \cong \angle NOK$ & $\angle KOM \cong \angle OKN$	Alt. Int. \angle 's Thm.
$\overline{OK} \cong \overline{KO}$	Reflexive Prop.
$\triangle KMO \cong \triangle OKN$	ASA
$\angle KMO \cong \angle OKN$	CPCTC