

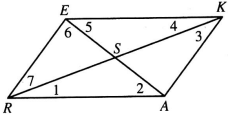
WAYS TO PROVE THAT QUADRILATERALS ARE PARALLELOGRAMS

I-9: Exercises 1-9 refer to $\square RAKE$.

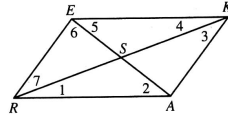
I-4: Complete each statement.

5-9: Find the value of x .

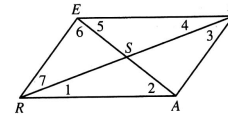
1) If $ER = 14$, $KA =$ _____



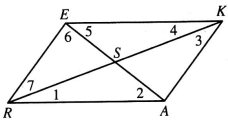
2) If $RS = 12$, $RK =$ _____



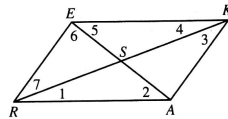
3) If $m(\angle ARE) = 53$, $m(\angle AKE) =$ _____



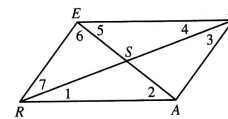
4) If $m(\angle RAK) = 130$,
 $m(\angle ARE) =$ _____



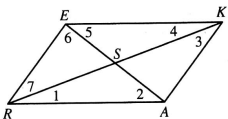
5) If $ES = 2x + 5$ and $SA = 17$,
 $x =$ _____



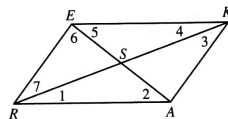
6) If $EK = 4x - 3$ and $RA = 53$,
 $x =$ _____



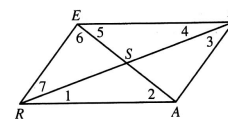
7) If $m(\angle 2) = 2x - 9$ and
 $m(\angle 5) = x + 11$, $x =$ _____



8) If $m(\angle RAK) = 150$ and
 $m(\angle KER) = 6x$, $x =$ _____



9) If $m(\angle ARE) = x + 10$ and
 $m(\angle REK) = 3x - 2$, $x =$ _____



10-14: State the principal definition or theorem that enables you to deduce, from the information given, that quadrilateral ROCK is a parallelogram.

10) $\overline{OR} \cong \overline{CK}$; $\overline{OC} \cong \overline{RK}$



11) $\overline{RK} \cong \overline{OC}$; $\overline{RK} \parallel \overline{OC}$



12) $\overline{OR} \parallel \overline{CK}$; $\overline{OC} \parallel \overline{RK}$



13) $RS = SC$; $KS = SO$



14) $\angle ROC \cong \angle CKR$; $\angle KRO \cong \angle OCK$

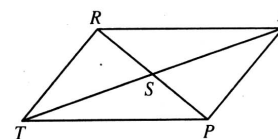


15)

Given: $\triangle RST \cong \triangle PSA$

Prove: PART is a parallelogram

Proof:



STATEMENTS	REASONS
1) $\triangle RST \cong \triangle PSA$	1)
2) $\overline{RS} \cong \overline{PS}$; $\overline{TS} \cong \overline{AS}$	2)
3) S is the midpoint of \overline{PR} and \overline{AT}	3)
4) \overline{PR} and \overline{AT} bisect each other	4)
5) PART is a parallelogram	5)

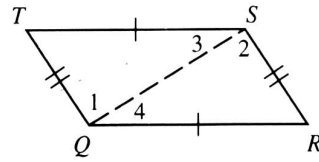
PROOFS OF THEOREMS

1)

Given: $\overline{TS} \cong \overline{QR}$; $\overline{TQ} \cong \overline{SR}$

Prove: $QRST$ is a parallelogram

Proof:



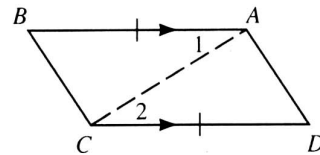
STATEMENTS	REASONS
1)	1)
2)	2)
3)	3)
4)	4)
5)	5)
6) $QRST$ is a parallelogram	6) Definition of a parallelogram

2)

Given: $\overline{AB} \cong \overline{CD}$; $\overline{AB} \parallel \overline{CD}$

Prove: $ABCD$ is a parallelogram

Proof:



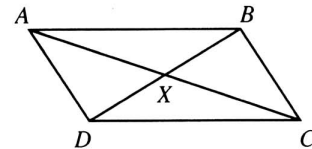
STATEMENTS	REASONS
1)	1)
2)	2)
3)	3)
4)	4)
5)	5)
6) $ABCD$ is a parallelogram	6) If both pairs of opp. sides of a quad. are congruent, then the quad. is a parallelogram.

3)

Given: \overline{AC} and \overline{BD} bisect each other

Prove: $ABCD$ is a parallelogram

Proof:



STATEMENTS	REASONS
1)	1)
2)	2)
3)	3)
4)	4)
5)	5)
6) $ABCD$ is a parallelogram	6) If both pairs of opp. sides of a quad. are congruent, then the quad. is a parallelogram