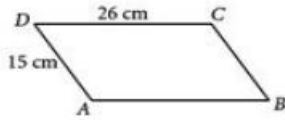


Section 1: Properties of Parallelograms

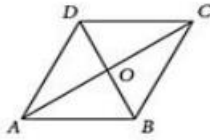
In Exercises 1–7, $ABCD$ is a parallelogram.

1. Perimeter $ABCD =$ _____



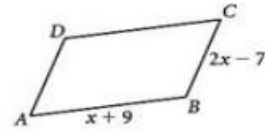
2. $AO = 11$, and $BO = 7$.

$AC =$ _____, $BD =$ _____

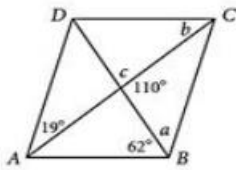


3. Perimeter $ABCD = 46$.

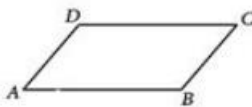
$AB =$ _____, $BC =$ _____



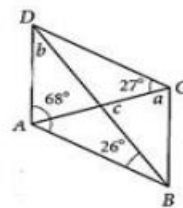
4. $a =$ _____, $b =$ _____,
 $c =$ _____



5. Perimeter $ABCD = 119$, and
 $BC = 24$. $AB =$ _____



6. $a =$ _____, $b =$ _____,
 $c =$ _____



Find the measure in the parallelogram HJK .
Explain your reasoning.

12. HI

13. KH

14. GH

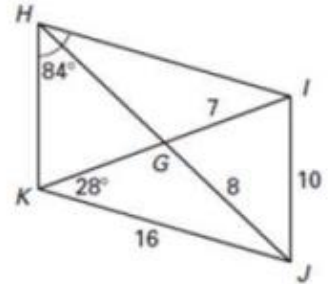
15. HJ

16. $m\angle KIH$

17. $m\angle JIH$

18. $m\angle KJI$

19. $m\angle HKI$



Quadrilateral $ABCD$ is a rhombus.

22. If $m\angle BAE = 32^\circ$, find $m\angle ECD$.

23. If $m\angle EDC = 43^\circ$, find $m\angle CBA$.

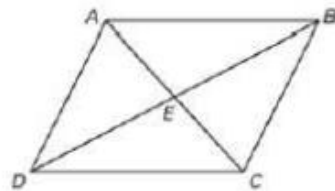
24. If $m\angle EAB = 57^\circ$, find $m\angle ADC$.

25. If $m\angle BEC = 3x - 15$, solve for x .

26. If $m\angle ADE = 5x - 8$ and $m\angle CBE = 3x + 24$, solve for x .

27. If $m\angle BAD = 4x + 14$ and $m\angle ABC = 2x + 10$, solve for x .

28. If $DC = 12$ and $ED = 7$, find AD and AC .



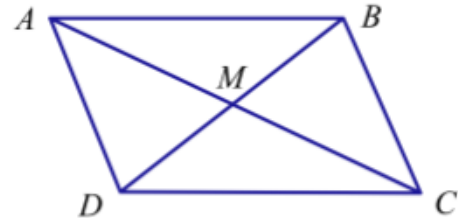
Section 2: Proofs

5 Ways of Showing that a Quadrilateral is a Parallelogram:

-
-
-
-
-

(which one of these is the def. of parallelogram?)

1. Use the diagram at the right to prove the following theorem:
 "If the diagonals of a quadrilateral bisect each other, then the quadrilateral is a parallelogram."

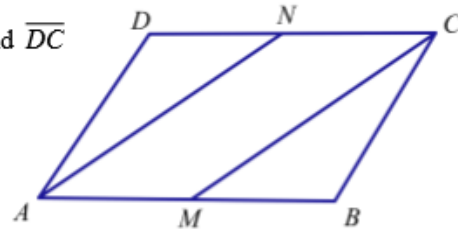


Given:

Prove:

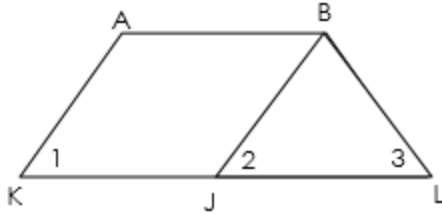
Statements	Reasons
1.	1.
2. M is the midpoint of _____; M is the midpoint of _____	2. Def. of segment bisector
3.	3. Def. of midpoint
4. $\angle AMB \cong \angle CMD$; \angle _____ $\cong \angle$ _____	4.
5. $\triangle AMB \cong \triangle$ _____; \triangle _____ $\cong \triangle$ _____	5.
6.	6. CPCTC
7. ABCD is a parallelogram	7. If both pairs of opp. sides of a quad. are \cong , then the quad. is a parallelogram

2. **Given:** Parallelogram ABCD; M and N are midpoints of \overline{AB} and \overline{DC}
Prove: AMCN is a parallelogram

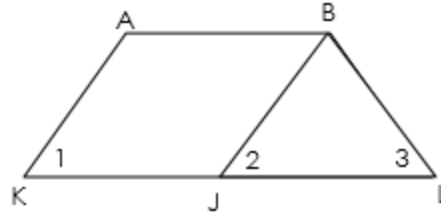


Statements	Reasons
1.	1.
2. $\overline{AB} \parallel \overline{DC}$ (so $\overline{AM} \parallel \overline{NC}$)	2.
3. $\overline{AB} \cong \overline{DC}$, or $AB = DC$	3.
4. $\frac{1}{2}AB = \frac{1}{2}DC$	4.
5. $AM = \frac{1}{2}AB$; $NC = \frac{1}{2}DC$	5.
6. $AM = NC$, or $\overline{AM} \cong \overline{NC}$	6.
7.	7.

7. Given: $\angle 1 \cong \angle 2$; $\angle 2 \cong \angle 3$;
 $\overline{AK} \cong \overline{BL}$
 Prove: $ABJK$ is a parallelogram



8. Given: $\overline{AK} \cong \overline{BJ}$; $\overline{BJ} \cong \overline{BL}$;
 $\angle 1 \cong \angle 3$
 Prove: $ABJK$ is a parallelogram



Section 3: Coordinate Geometry

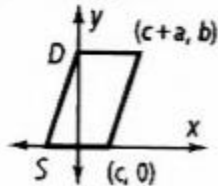
Graph the given points on graph paper. Use slope and the Distance Formula to determine the most precise name for quadrilateral $ABCD$.

4. $A(3, 5)$, $B(6, 5)$, $C(2, 1)$, $D(1, 3)$

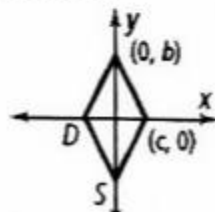
5. $A(-1, 1)$, $B(3, -1)$, $C(-1, -3)$, $D(-5, -1)$

Give coordinates for points D and S without using any new variables.

6. parallelogram



7. rhombus



8. isosceles trapezoid

