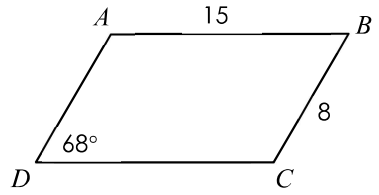
Name:	Date:
Topic:	Class:

Main Ideas/Questions	Notes/Examples
Properties of **PARALLELOGRAMS**	**Definition of a Parallelogram**:
	Other important properties of parallelograms:
	❶
	❷
	❸
	❹

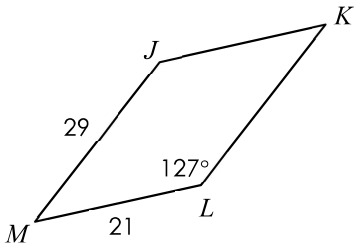
Directions: Each quadrilateral below is a parallelogram. Find the missing measures.

1.



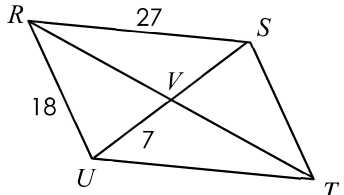
AD = _____
DC = _____
$m\angle A$ = _____
$m\angle B$ = _____
$m\angle C$ = _____

2.



JK = _____
KL = _____
$m\angle J$ = _____
$m\angle K$ = _____
$m\angle M$ = _____

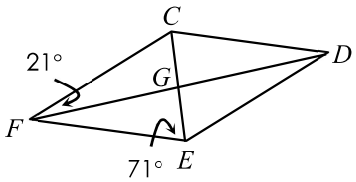
3.



*RT = 30

UT = _____
ST = _____
VS = _____
VT = _____

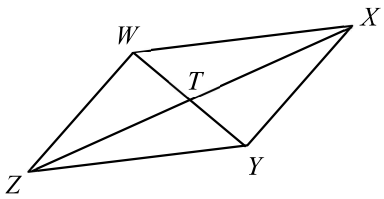
4.



*$m\angle FED$ = 134°

$m\angle DEC$ = _____
$m\angle CDE$ = _____
$m\angle ECD$ = _____
$m\angle DFE$ = _____

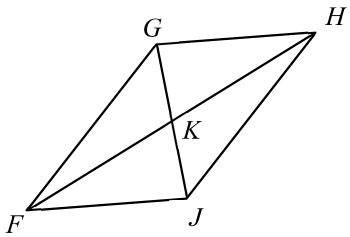
5. Given XY = 15, WX = 22, ZX = 32, WT = 10, $m\angle WZY$ = 62°, $m\angle WXT$ = 27°, and $m\angle ZWT$ = 77°.



ZW = _____
ZY = _____
TX = _____
WY = _____

$m\angle TZY$ = _____
$m\angle XYZ$ = _____
$m\angle XWT$ = _____
$m\angle XYT$ = _____

6. Given $m\angle GHF$ = 34°, $m\angle HJF$ = 124°, and $m\angle FKJ$ = 79°.



$m\angle GFJ$ = _____
$m\angle FGH$ = _____
$m\angle HFJ$ = _____
$m\angle HKJ$ = _____

$m\angle JGH$ = _____
$m\angle FGJ$ = _____
$m\angle FHJ$ = _____
$m\angle GJF$ = _____

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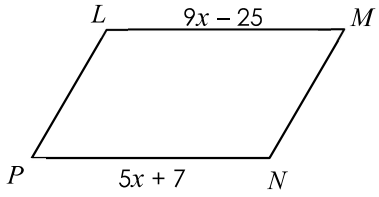
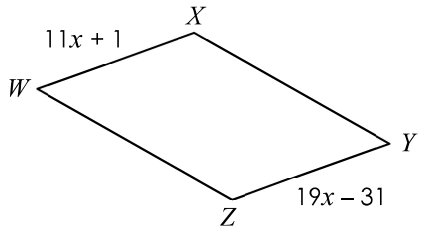
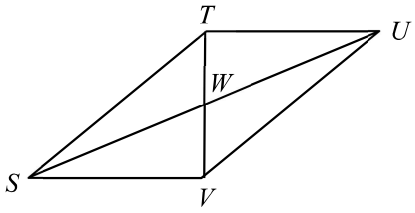
7. Solve for x.



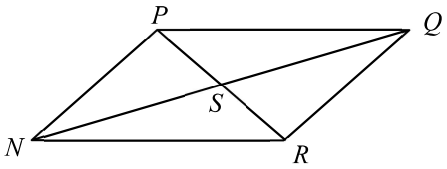
8. Find YZ.



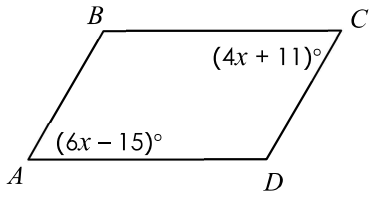
9. If $TV = 74$ and $WV = 4x + 1$, solve for x.



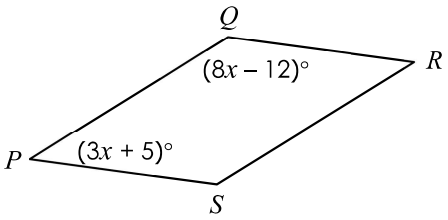
10. If $NS = 2x + 7$ and $SQ = 5x - 23$, find NQ.



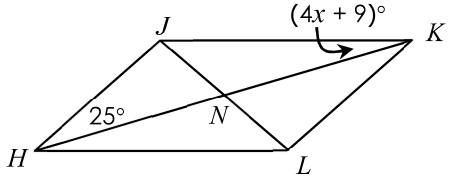
11. Find $m\angle B$.



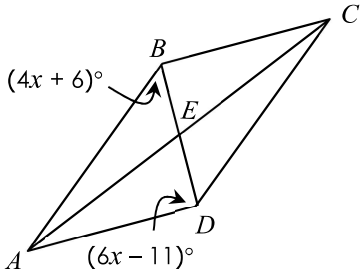
12. Find $m\angle R$.



13. If $m\angle KLH = 134°$, solve for x.



14. If $m\angle ABC = 115°$, find $m\angle ADB$.



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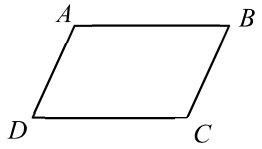
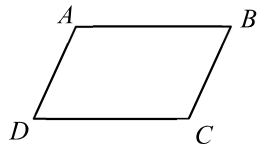
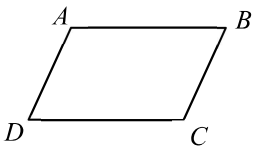
PROVING PARALLELOGRAMS *in the Coordinate Plane*

METHOD 1	Prove **both pairs of opposite sides** are **congruent.**  If _____ and _____, then $ABCD$ is a parallelogram.	**Use….**
METHOD 2	Prove **both pairs of opposite sides** are **parallel.**  If _____ and _____, then $ABCD$ is a parallelogram.	**Use….**
METHOD 3	Prove **one pair of opposite sides** are **congruent and parallel.**  If _____ and _____, then $ABCD$ is a parallelogram.	**Use….**

SET I: Use the **distance formula** to determine if the figure is a parallelogram.

1. $A(-7, 4)$, $B(1, 2)$, $C(9, -8)$, $D(1, -6)$

2. $P(-4, 2)$, $Q(6, 4)$, $R(11, -2)$, $S(2, -3)$

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SET 2: Use the **slope formula** to determine if the figure is a parallelogram.

3. $W(-7, -4)$, $X(1, -6)$, $Y(5, -13)$, $Z(1, -12)$

4. $E(0, 8)$, $F(6, 10)$, $G(2, 0)$, $H(-4, -2)$

SET 3: Use the **distance formula AND slope formula** to determine if the figure is a parallelogram.

5. $J(-9, -2)$, $K(-5, 1)$, $L(1, -4)$, $M(-3, -7)$

6. $S(1, 5)$, $T(10, 7)$, $U(14, 1)$, $V(-3, -1)$

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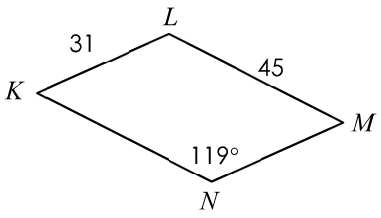
Name: _____ **Unit 8:** Polygons & Quadrilaterals

Date: _____ **Per:** _____ **Homework 2:** Parallelograms

**** This is a 2-page document! ****

Directions: If each quadrilateral below is a parallelogram, find the missing measures.

1.



MN = _____

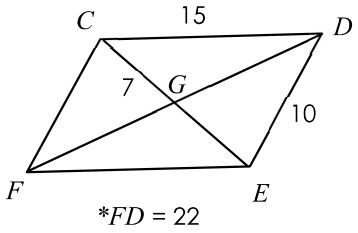
KN = _____

$m\angle K$ = _____

$m\angle L$ = _____

$m\angle M$ = _____

2.



*FD = 22

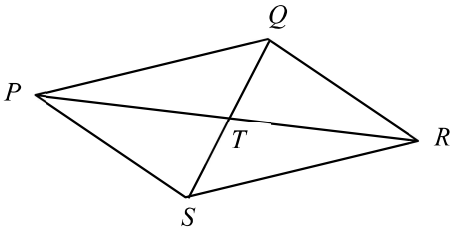
CF = _____

FE = _____

CE = _____

GD = _____

3. Given PQ = 24, PS = 19, PR = 42, TQ =10, $m\angle PQR$ = 106°, $m\angle QSR$ = 49°, and $m\angle PRS$ = 35°.



QR = _____

SR = _____

PT = _____

SQ = _____

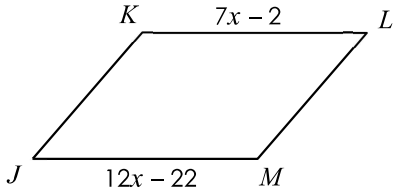
$m\angle QRS$ = _____

$m\angle PQS$ = _____

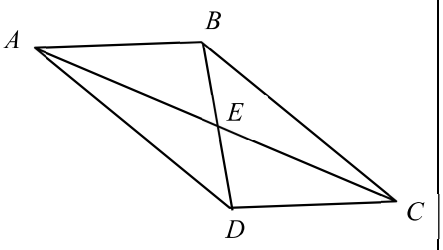
$m\angle RPS$ = _____

$m\angle PSQ$ = _____

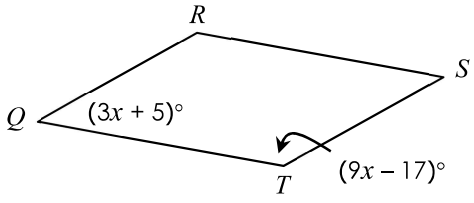
4. Find KL.



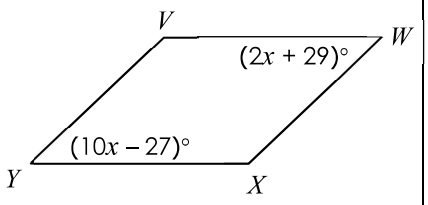
5. If $AC = 8x - 14$ and $EC = 2x + 11$, solve for x.



6. Solve for x.



7. Find $m\angle V$.



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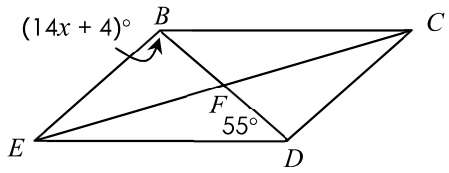
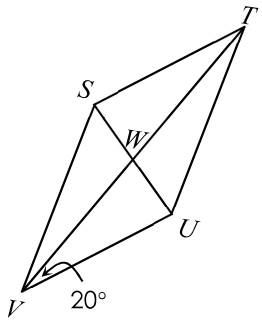
8. If $m\angle BCD = 51°$, solve for x.



9. If $m\angle VST = (5x + 23)°$ and $m\angle VUT = (8x - 49)°$, find $m\angle SVT$.



Directions: Determine whether the quadrilateral is a parallelogram using the indicated method.

10. $Q(-10, -2)$, $R(1, -1)$, $S(1, -7)$, $T(-11, -8)$ (Distance Formula)

11. $K(2, 7)$, $L(6, 12)$, $M(13, 13)$, $N(9, 8)$ (Slope Formula)

12. $D(-5, -6)$, $E(5, 2)$, $F(4, -4)$, $G(-6, -12)$ (Distance & Slope Formulas)

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