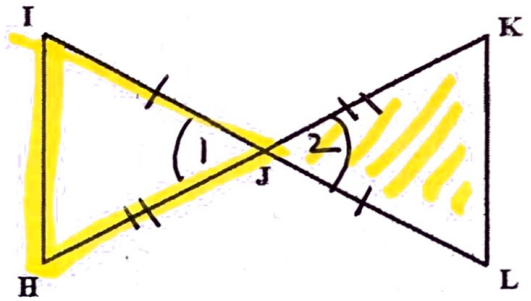
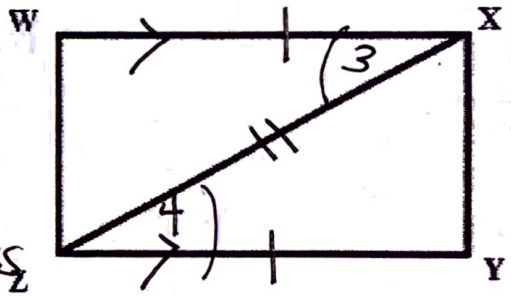
Example 2: Given: J is the midpoint of $\overline{IL}$.
J is the midpoint of $\overline{HK}$.
Prove: $\Delta IJH \cong \Delta LJK$



Statement:	Reason:
(1) J midpt. $\overline{IL}$, J midpt. $\overline{HK}$	(1) Given
(2) $\overline{IJ} \cong \overline{JL}$, $\overline{HJ} \cong \overline{JK}$	(2) Defn of midpoint
(3) $\angle 1 \cong \angle 2$	(3) vertical $\angle$s are $\cong$
(4) $\Delta IJH \cong \Delta LJK$	(4) SAS

You Try! Given: WX ∥ YZ, WX ≅ YZ
Prove: $\Delta WXZ \cong \Delta YZX$
(Hint: It should take anywhere from 4-5 steps)

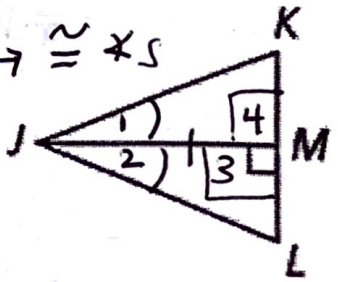


Statement:	Reason:
(1) $\overline{WX} \parallel \overline{YZ}$, $\overline{WX} \cong \overline{YZ}$	(1) Given
(2) $\angle 3 \cong \angle 4$	(2) ∥ lines → $\cong$ alt. int. $\angle$s
(3) $\overline{XZ} \cong \overline{XZ}$	(3) Reflexive Prop.
(4) $\Delta WXZ \cong \Delta YZX$	(4) SAS

You Try!. Given: $\overline{JM}$ bisects $\angle J$.
$\overline{JM} \perp \overline{KL}$

Prove: $\Delta JMK \cong \Delta JML$

⊥ lines → right $\angle$s → $\cong$ $\angle$s



Statement:	Reason:
(1) $\overline{JM}$ bisects $\angle J$, $\overline{JM} \perp \overline{KL}$	(1) Given
(2) $\angle 1 \cong \angle 2$	(2) Defn angle bisector
(3) $\angle 3$, $\angle 4$ are right $\angle$s	(3) Defn ⊥ lines
(4) $\angle 3 \cong \angle 4$	(4) all right $\angle$s $\cong$
(5) $\overline{JM} \cong \overline{JM}$	(5) Reflexive Prop.
(6) $\Delta JMK \cong \Delta JML$	(6) ASA

Math 3

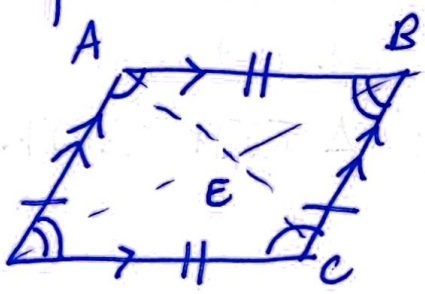
Unit 6b ~ Day 2 Parallelograms

Name_____

Define:

QUADRILATERAL - four-sided polygon

PARALLELOGRAM - quadrilateral with opposite sides parallel



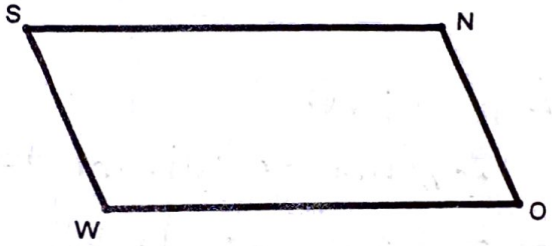
Theorems about Parallelograms:

Opposite sides of a parallelogram are congruent.

Opposite angles of a parallelogram are congruent.

Consecutive angles of a parallelogram are supplementary.

The diagonals of a parallelogram bisect each other.



Using parallelogram SNOW:

The side opposite $\overline{SN}$ = $\overline{OW}$

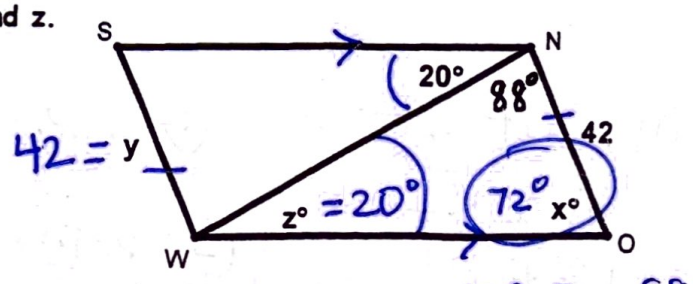
The side opposite $\overline{ON}$ = $\overline{SW}$

The angle opposite ∠N = ∠W

Name a consecutive angle for ∠S = ∠N, ∠W

Parallelogram examples:

#1: For the parallelogram, find the values of x, y and z.

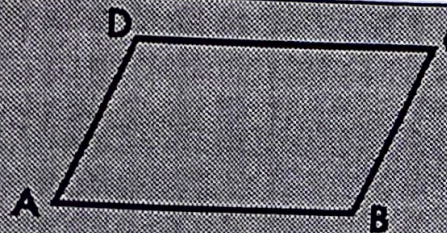


180 - 20 - 88

Quadrilaterals

Keep in mind...
If you put forth $^1/_2$ the effort, you only get a fraction of the results.

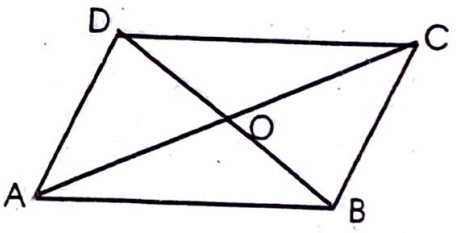
Properties of Parallelograms



- Four sides.
- Both pair of opposite sides are parallel.
- Both pair of opposite sides are congruent.
- Both pair of opposite angles ar e congruent.
- Diagonals bisect each other .

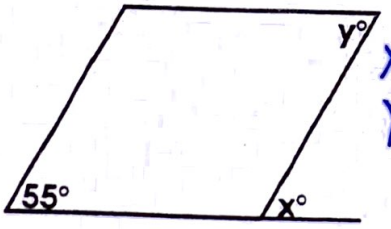
Complete the following ▱ABCD.

1. $\overline{AB} \parallel$ $\overline{CD}$
2. $\overline{AB} \cong$ $\overline{CD}$
3. $\angle A \cong$ $\angle C$
4. $\overline{OA} \cong$ $\overline{OC}$
5. $\overline{OB} \cong$ $\overline{OD}$
6. $\overline{AD} \cong$ $\overline{CB}$



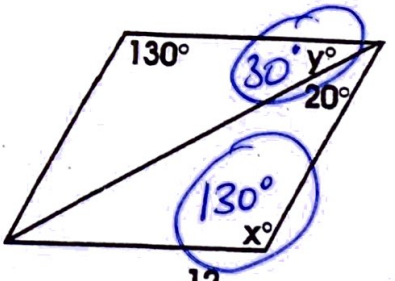
Find the missing values for each parallelogram.

7.

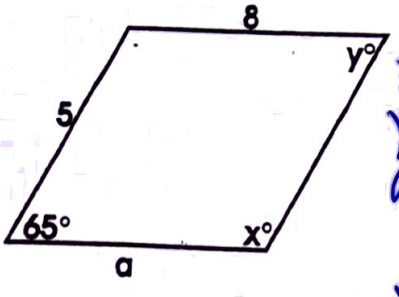


x = 55
y = 55

8.

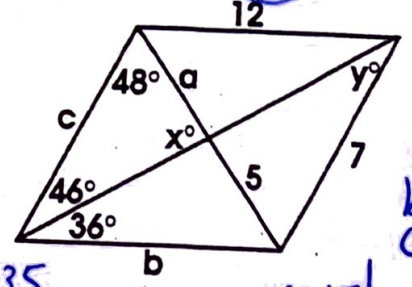


9.



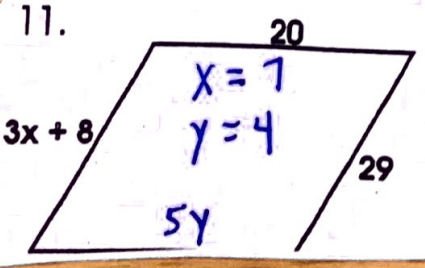
x = 115
y = 65
a = 8

10.



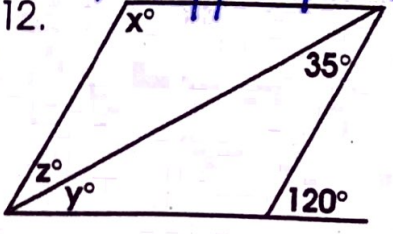
x = 86
y = 46
a = 5
b = 12
c = 7

11.



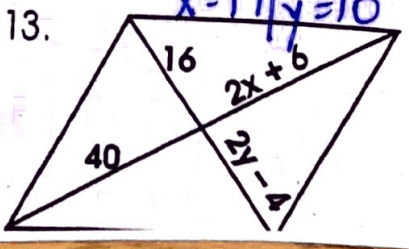
x = 7
y = 4

12.



x = 60 | y = 85 | z = 35

13.



x = 17 | y = 10