

Warm-Up

Name: Key

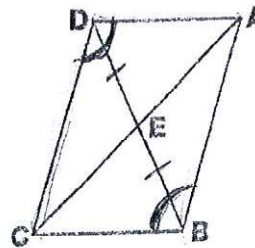
USING QUADRILATERAL PROPERTIES

Properties of a parallelogram:	
1. Opposite sides are parallel.	
2. Opposite sides are congruent.	
3. Opposite angles are congruent.	
4. Consecutive angles are supplementary.	
5. Diagonals bisect each other.	

EXAMPLE 1

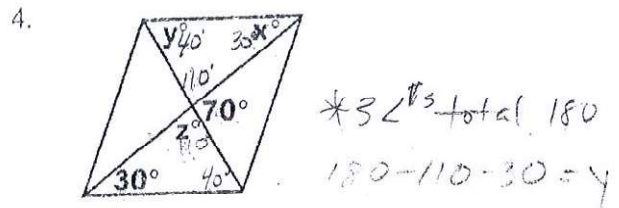
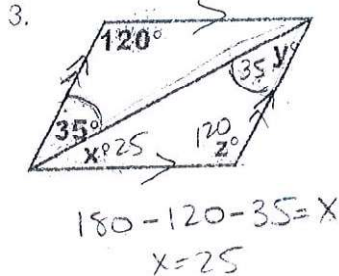
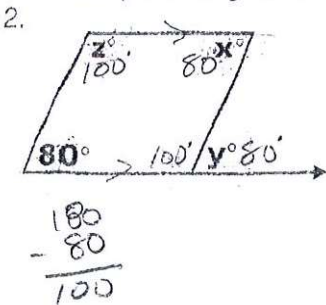
Complete each statement regarding the parallelogram below.

- Name the parallelogram: ▭ ABCD
- AB || DC
- DA ≅ CB
- $\angle CDA \cong \angle ABC$
- DE ≅ BE



EXAMPLES

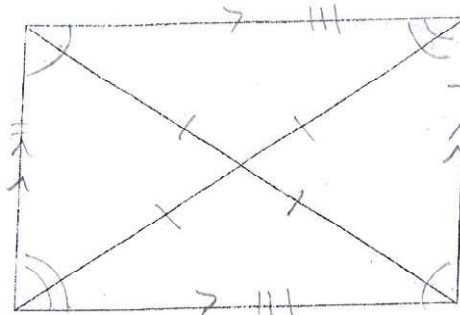
For each parallelogram, find the values of 'x', 'y', and 'z'.



$x = \underline{80^\circ}$; $y = \underline{80^\circ}$; $z = \underline{100^\circ}$;
 $x = \underline{25^\circ}$; $y = \underline{35^\circ}$; $z = \underline{120^\circ}$;
 $x = \underline{30^\circ}$; $y = \underline{40^\circ}$; $z = \underline{110^\circ}$

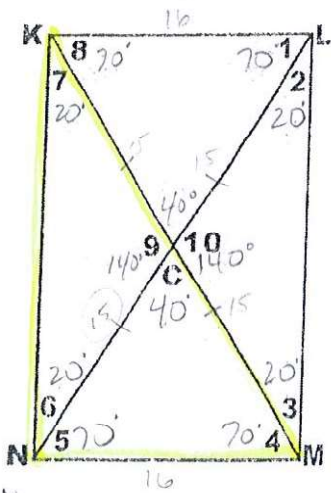
Properties of a rectangle:

1. Opposite sides are parallel.
2. Opposite sides congruent.
3. Opposite angles congruent.
4. Consecutive angles supplementary.
5. Diagonals bisect each other.
6. Four right angles.
7. Diagonals are congruent.



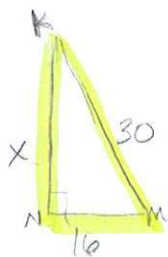
EXAMPLE 5

Use the rectangle KLMN and the given information to find the following.



- | | |
|------------------------|--------------------------|
| $m\angle 1 = 70^\circ$ | $m\angle 6 = 20^\circ$ |
| $m\angle 2 = 20^\circ$ | $m\angle 7 = 20^\circ$ |
| $m\angle 3 = 20^\circ$ | $m\angle 8 = 70^\circ$ |
| $m\angle 4 = 70^\circ$ | $m\angle 9 = 140^\circ$ |
| $m\angle 5 = 70^\circ$ | $m\angle 10 = 140^\circ$ |

- | | |
|---------|----------------------|
| CN = 15 | KL = 16 |
| CM = 15 | KM = 30 |
| CL = 15 | KN = ≈ 25.38 |
| CK = 15 | NM = 16 |
| NL = 30 | LM = ≈ 25.38 |



Use Pythagorean Theorem

$$a^2 + b^2 = c^2$$

$$16^2 + b^2 = 30^2$$

$$256 + b^2 = 900$$

$$b^2 = 644$$

$$b = 2\sqrt{161}$$

$$b \approx 25.38$$