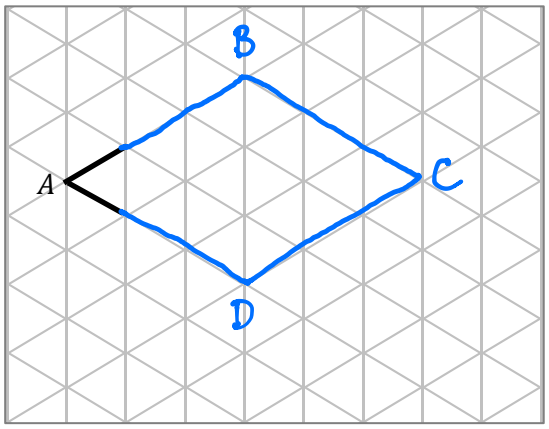
Name _____ Date _____

1. $\angle A$ measures 60°. Extend the rays of $\angle A$ and draw parallelogram $ABCD$ on the grid paper.



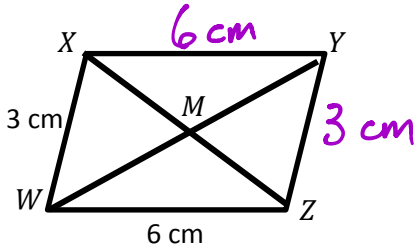
   a. What are the measures of $\angle B$, $\angle C$, and $\angle D$?

$\angle A = 60^\circ$
$\angle B = 120^\circ$
$\angle C = 60^\circ$
$\angle D = 120^\circ$

2. $WXYZ$ is a parallelogram not drawn to scale.

   a. Using what you know about parallelograms, give the measure of sides XY and YZ.

$XY = 6$ cm
$YZ = 3$ cm

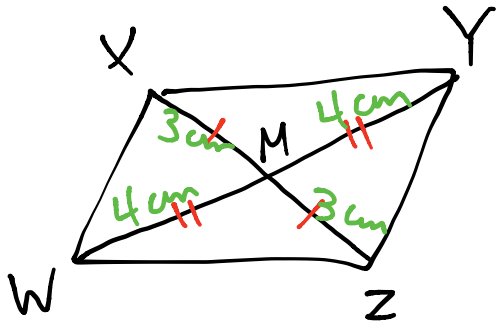


   b. $\angle WXY = 113°$. Use what you know about angles in a parallelogram to find the measure of the other angles.

$\angle XYZ =$ 67° $\angle YZW =$ 113° $\angle ZWX =$ 67°

3. Jack measured some segments in Problem 2. He found that $\overline{WY}$ = 8cm and $\overline{MZ}$ = 3 cm. Give the lengths of the following segments:

$WM =$ 4 cm $MY =$ 4 cm
$XM =$ 3 cm $XZ =$ 6 cm



4. Using the properties of the shapes, explain why all parallelograms are trapezoids.

Answers will vary: All parallelograms must have two pairs of parallel lines. Trapezoids must have at least one pair of parallel lines. This means all parallelograms are also trapezoids.

5. Teresa says that because the diagonals of a parallelogram bisect each other, if one diagonal is 4.2 cm, the other diagonal must be half that length. Use words and pictures to explain Teresa's error.

An example to show that Teresa is wrong is a rhombus that is also a square (see image to right). This is a parallelogram in which the diagonals are the same length, rather than one being half the length of the other.