

Name: Key Date: _____

Choose a word from the word bank to complete each sentence. Words will be used more than once.

Congruent	Parallel	Supplementary	Parallelogram	Bisect
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- A quadrilateral with two pairs of parallel sides is a parallelogram.
- The opposite sides of a parallelogram are parallel and congruent.
- The opposite angles of a parallelogram are congruent.
- The consecutive angles of a parallelogram are supplementary.
- The diagonals of a parallelogram bisect each other.

Use parallelogram ABCD to answer questions #6-8.

6. Name two pairs of congruent angles:

$\angle A \cong \angle C$ AND $\angle B \cong \angle D$

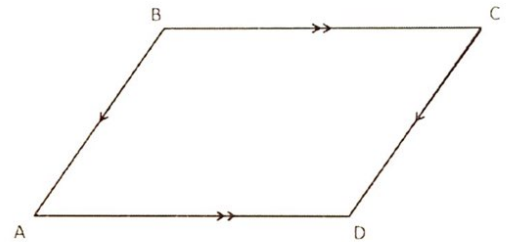
7. Name four pairs of supplementary angles:

$m\angle A + m\angle B = 180^\circ$

$m\angle B + m\angle C = 180^\circ$

$m\angle C + m\angle D = 180^\circ$

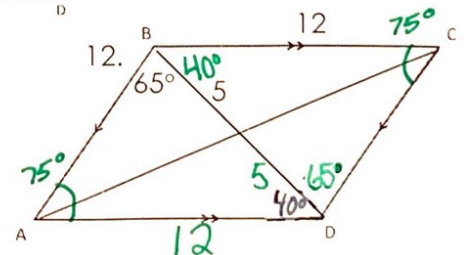
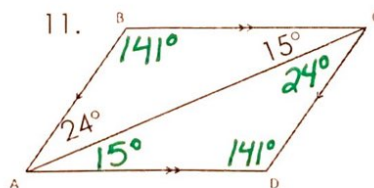
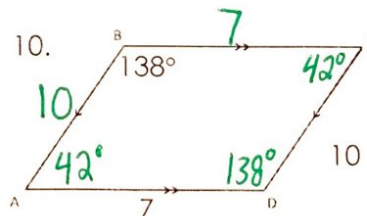
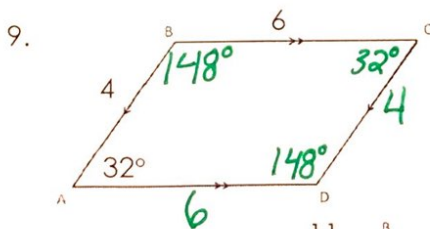
$m\angle D + m\angle A = 180^\circ$



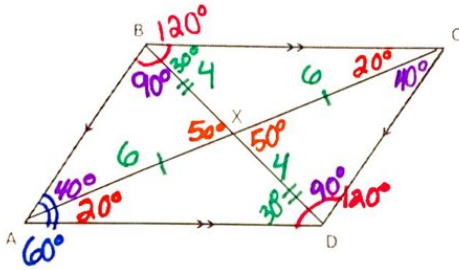
8. Name two pairs of congruent segments:

$\overline{AB} \cong \overline{DC}$ AND $\overline{BC} \cong \overline{AD}$

All of the following diagrams are parallelograms. Find the missing angle measurements and side lengths. Label ALL of them on the diagram.



Use parallelogram ABCD to answer the following questions.



13. If $DX = 4$ and $AX = 6$, find:

$BX = 4$ $BD = 8$
 $XC = 6$ $AC = 12$

14. If $m\angle ABC = 120^\circ$, $m\angle DXC = 50^\circ$, and $m\angle DCX = 40^\circ$, find:

$m\angle ADC = 120^\circ$ $m\angle DAB = 60^\circ$ $m\angle ACB = 20^\circ$
 $m\angle BDC = 90^\circ$ $m\angle ADB = 30^\circ$ $m\angle ABD = 90^\circ$

Using the properties of parallelograms, (1) identify the relationship between given features, (2) identify the property of parallelograms supporting the relationship, and (3) write and solve an algebraic equation for each diagram.

Diagram	15.	16.	17.
Relationship: Congruent OR Supplementary?	congruent	supplementary	congruent
Property of Parallelograms Supporting the Relationship?	opposite sides are congruent	consecutive angles are supplementary	opposite angles are congruent
Equation	$2x + 8 = 14$ $\begin{array}{r} -8 \quad -8 \\ \hline 2x = 6 \\ \hline x = 3 \end{array}$	$2x + 20 + 3x + 10 = 180$ $5x + 30 = 180$ $\begin{array}{r} -30 \quad -30 \\ \hline 5x = 150 \\ \hline x = 30 \end{array}$	$8x - 6 = 98$ $\begin{array}{r} +6 \quad +6 \\ \hline 8x = 104 \\ \hline x = 13 \end{array}$
X = ?	3	30	13