

8.2 Properties of Parallelograms Homework

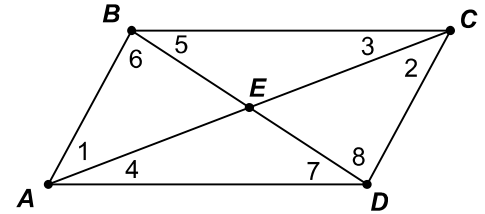
Name _____

Date _____ Per _____

Solve each problem. Show your work where possible.

In the following problems, $ABCD$ is a parallelogram.

- $\angle ABC \cong \angle$ _____
- $\angle BCD$ and \angle _____ are supplementary angles.
- If $BE = 5$, then $BD =$ _____.
- If $m\angle 1 = 35^\circ$ and $m\angle 4 = 40^\circ$, then $m\angle BCD =$ _____.
- If $m\angle BCD = 6x + 20$ and $m\angle DAB = 3x + 50$, then $x =$ _____ and $m\angle BCD =$ _____.
- If $m\angle ABC = 105^\circ$, then $m\angle BCD =$ _____ and $m\angle CDA =$ _____.
- If $BC = 4y + 12$ and $AD = 6y - 2$, then $y =$ _____ and $BC =$ _____.
- If $m\angle 2 = 48^\circ$, $m\angle 3 = 64^\circ$, and $m\angle 5 = 38^\circ$, then $m\angle 6 =$ _____.

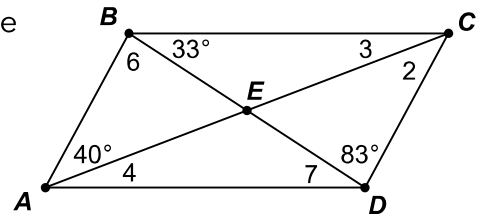


- $ABCD$ is a parallelogram. Find the requested angle measures.

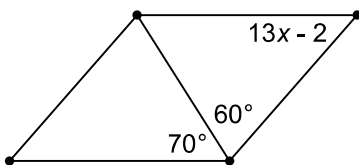
$$m\angle 2 = \underline{\hspace{2cm}} \quad m\angle 3 = \underline{\hspace{2cm}}$$

$$m\angle 4 = \underline{\hspace{2cm}} \quad m\angle 6 = \underline{\hspace{2cm}}$$

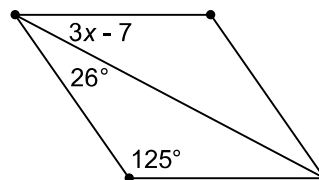
$$m\angle 7 = \underline{\hspace{2cm}} \quad m\angle BEC = \underline{\hspace{2cm}}$$



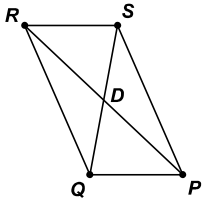
- Find the value of x in the parallelogram.



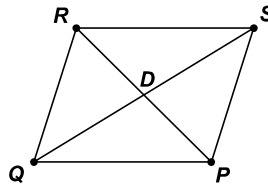
- Find the value of x in the parallelogram.



12. In the parallelogram, $QD = -3 + x$ and $DS = 2x - 15$. Find QD .



13. In the parallelogram, $SD = 4x - 3$ and $QS = 6x$. Find QS .



14. $LMNO$ is a parallelogram. If $NM = x + 15$ and $OL = 3x + 5$, find the value of x , NM , and OL .

15. Find the coordinates of the intersection of the diagonals of parallelogram $WXYZ$ given the vertices below.

$$W(-3,0), X(-1,3), Y(3,2), Z(1,-1)$$

16. Find the coordinates of the intersection of the diagonals of parallelogram $ABCD$ given the vertices below.

$$A(3,3), B(8,2), C(6,-1), D(1,0)$$