

## **6.2 – Properties of Parallelograms**

Find the value of  $x$  in each parallelogram.

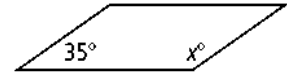
1)



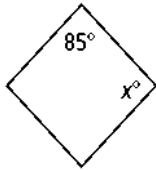
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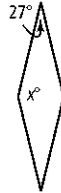
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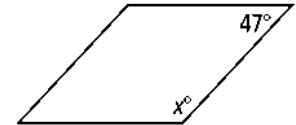
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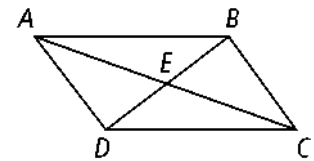


6)



Algebra Find the values for  $x$  and  $y$  in parallelogram  $ABCD$ .

7)  $AE = 3x$ ,  $EC = 2y - 2$ ,  $DE = 5x$ ,  $EB = 2y + 2$



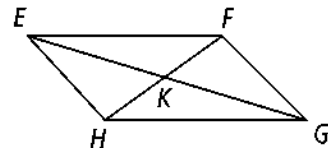
8)  $AE = 2x$ ,  $EC = y + 4$ ,  $DE = x$ ,  $EB = 2y - 1$

9)  $AE = 4x$ ,  $EC = 5y - 2$ ,  $DE = 2x$ ,  $EB = y + 14$

10) Write a two-column proof.

Given: Parallelogram  $EFGH$ , with diagonals  $\overline{EG}$  and  $\overline{HF}$

Prove:  $\triangle EFK \cong \triangle GHK$



Statement	Reasons
1. _____	_____
2. _____	Diagonals of a parallelogram bisect each other
3. _____	Diagonals of a parallelogram bisect each other
4. $\overline{EF} \cong \overline{GH}$	_____
5. _____	_____

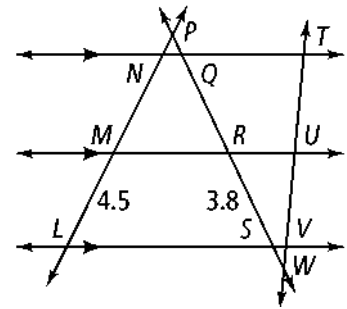
In the figure,  $TU = UV$ . Find each length.

11)  $NM$

12)  $QR$

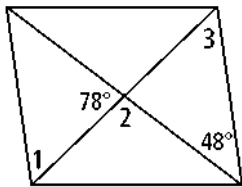
13)  $LN$

14)  $QS$

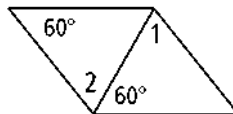


Find the measures of the numbered angles for each parallelogram.

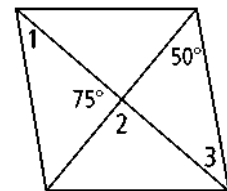
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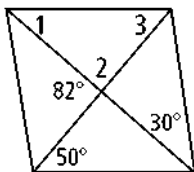
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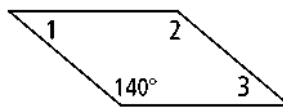
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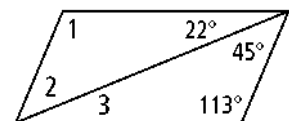
18)



19)



20)



- 21) The measure of one interior angle of a parallelogram is  $30^\circ$  more than two times the measure of another angle. Find the measure of each angle of the parallelogram.
- 22) Your friend claims that you can prove that two parallelograms are congruent by proving that they have two pairs of congruent opposite angles. Is your friend correct? Explain your reasoning.
- 23) State whether each statement is *always*, *sometimes*, or *never* true for a parallelogram.
- The opposite sides are congruent.
  - All four sides are congruent.
  - The diagonals are congruent.
  - The opposite angles are congruent.
  - The adjacent angles are congruent.
  - The adjacent angles are complementary.