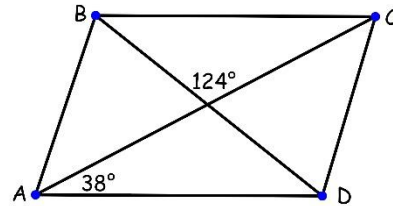


## Modeling Homework

Name \_\_\_\_\_

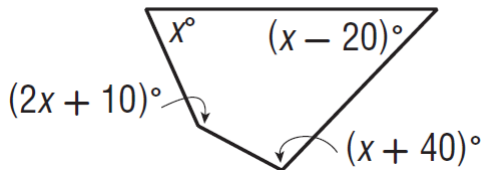
1.  $ABCD$  is a parallelogram with coordinates  $A(4,2)$ ,  $B(4,-1)$ ,  $C(-2,-1)$ , and  $D(-2,2)$ . Show that  $ABCD$  is a rectangle, by proving the diagonals are congruent.

2. A For parallelogram  $ABCD$ , find  $m\angle DBC$

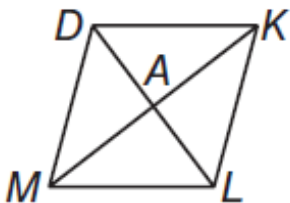


3. Nick ordered a coffee table that was a regular quadrilateral. Find the measure of an exterior angle of the table.

4. Find the value of  $x$  given the following diagram.



5. In rhombus  $DKLM$ , if  $m\angle DKL = 46$ , find  $m\angle KLD$

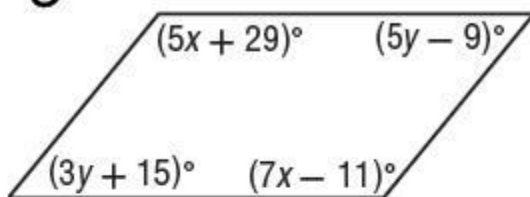


6. Use coordinate geometry to justify what type of quadrilateral has coordinates  $A(-1,5)$ ,  $B(2,5)$ ,  $C(2,-1)$ , and  $D(-1,1)$ .

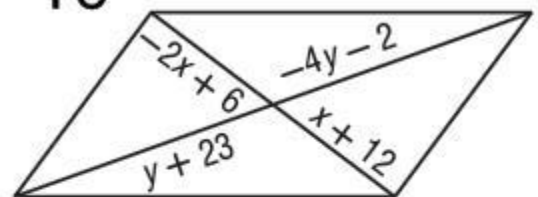
7. The diagonals of square  $ABCD$  intersect at  $E$ . If  $AE = 8x - 1$  and  $BD = 12x + 18$ , find  $AC$ .
8. Using slope or distance determine if the quadrilateral  $ABCD$  with coordinates  $A(-10, 2)$ ;  $B(-8, -6)$ ;  $C(5, -3)$ ;  $D(2, 5)$  is a rectangle. Show all of your work and give an explanation to support your answer.

Find the values of  $x$  &  $y$  so that the quadrilateral is a parallelogram

9



10



11

**TILE DESIGN** The pattern shown in the figure is to consist of congruent parallelograms. How can the designer be certain that the shapes are parallelograms?



12

**CONSTRUCTION** Mr. Rodriguez used the parallelogram at the right to design a herringbone pattern for a paving stone. He will use the paving stone for a sidewalk. If  $m\angle 1$  is 130, find  $m\angle 2$ ,  $m\angle 3$ , and  $m\angle 4$ .

