

This page replaces the activity on page 23 “Reflecting the House.”

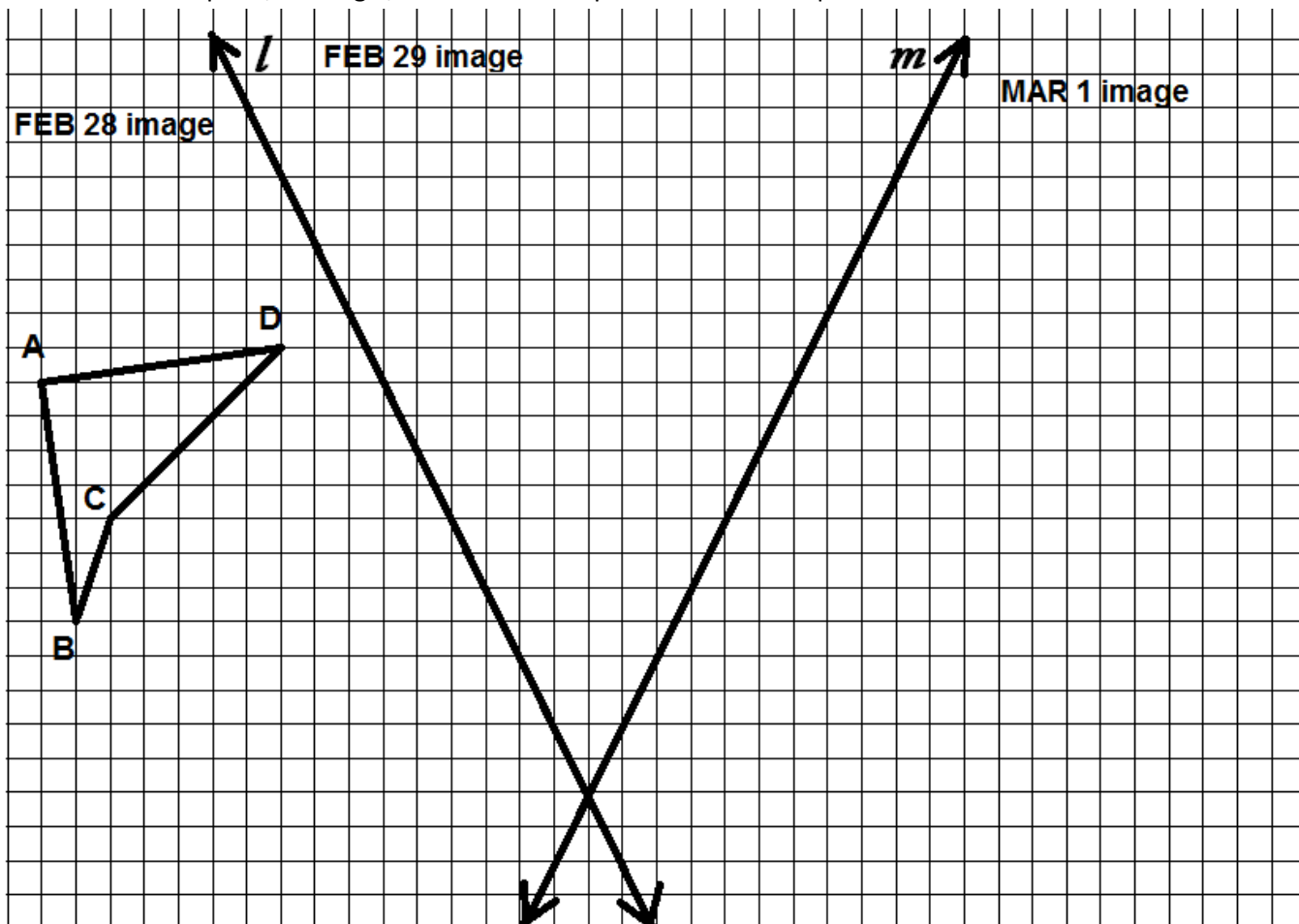
The house images for February 28, 29 and March 1 on page 23 were not helpful because anchor points are not on lattice points making it more difficult to see the relationships I want you to see resulting from a double reflection in intersecting lines. Below the quadrilateral ABCD will conveniently use lattice points for image A'B'C'D' and A''B''C''D'' except for point C''.

To relate this activity to the house activity on page 23, ABCD will be the February 28 image, A'B'C'D' will be the February 29 image and A''B''C''D'' will be the March 1 image.

Complete these transformations on the coordinate plane below.

- Reflect ABCD in line *l*. The image A'B'C'D' is a single reflection in line *l*. What must be true about segments connecting pre-image and image points under a reflection? Be sure this happens.
- Reflect A'B'C'D' in line *m*. The image A''B''C''D'' is the result of a double reflection in the intersecting lines *l* and *m*. What must be true about segments connecting pre-image and image points under a reflection? Be sure this happens.
- What single transformation maps ABCD onto A''B''C''D''? Describe this transformation in complete detail. How could you and your table mate use both of your papers to show the single transformation? Do this now.
- Use your protractor to measure the **acute angle** between intersecting line *l* and *m*. How does this angle relate to the single transformation you described in part c).

Vocab FYI: The quadrilateral shown below may be called a “dart” and is a concave quadrilateral.  
 A square, rectangle, rhombus and trapezoid are convex quadrilaterals.



Below is a list of quadrilaterals along with one representative shape drawn on the grid.

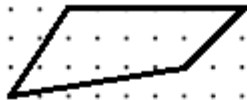
Using pencil, straight edge and the grid provided, draw one additional shape satisfying the requirements listed here.

**Requirements:** Be sure that the object you draw

- has the appropriate attributes and characteristics of the shape.
- has all vertices at lattice points on the grid.
- has sides that are NEITHER horizontal NOR vertical segments.
- satisfies the specified criteria in the box below the name of each quadrilateral.

**1 quadrilateral**

This quad is convex.  
Draw a concave quad.



**2 parallelogram**

The lengths of the sides  
must be  $\sqrt{13}$  and  $\sqrt{26}$ .



**3 rectangle**

Longer side must be 2.5  
times length of short side.



**4 square**

Perimeter must be 20.



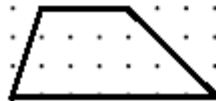
**5 rhombus**

Perimeter must be 52.



**6 trapezoid**

Ratio of lengths of parallel  
sides must be 1:2.



When you are finished open Module 6 to page 24. Write definitions for each object that address the essential elements, attributes and characteristics of the shape.