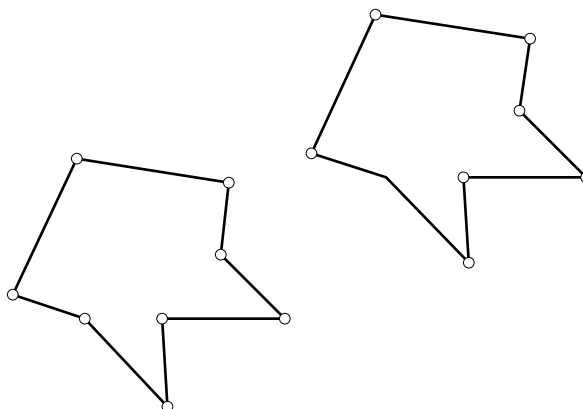





Exploring Translations



1. Open a new sketch.
 2. Construct a polygon (use the Segment tool ). This figure is your preimage.
- Use Sketchpad to translate your polygon.
3. Select your polygon (use the Selection Arrow tool .
 4. Go to the **Transform** menu and choose **Translate**.
 5. Choose **By Rectangular Vector**.
 6. Enter a Horizontal and a Vertical distance.
 7. Click on **OK**. This new figure is your image.
 8. Drag any vertex or side of your preimage. Observe the effects on the image.
 9. Go to the **Edit** menu and choose **Undo** until you see only your original selected preimage.
 10. Repeat steps 4, 5, 6, and 7, entering different values for the Horizontal and Vertical distances. You may want to use some negative values. Observe the results.
 11. Drag your figure again and make observations.
 12. Based on your observations, define *translation*. Include the relationship between sizes, shapes, and locations of the preimage and image.

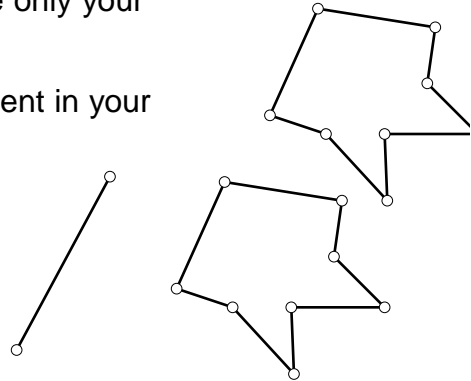
Alternate Method for Translations


13. Go to the **Edit** menu and choose **Undo** until you see only your original preimage.

14. Using the Segment tool , construct a short segment in your sketch.

15. Hold down the Shift key, and click on the two endpoints of the segment. Make sure only the endpoints are selected, not the segment itself.

16. Go to the **Transform** menu and choose **Mark Vector**.



17. Select the sides and vertices of your polygon (use the Selection Arrow tool ).

18. Go to the **Transform** menu and choose **Translate**.

19. Choose **By Marked Vector**.

20. Click on **OK**. You should see a new image appear.

21. Drag one of the endpoints of the vector segment. Observe the image as you drag either endpoint of the segment. How does this affect the size, shape, and position of the image?

22. Drag one of the vertices of the preimage. How does this affect the size, shape, and position of the image?

23. How is the effect of changing the vector different from the effect of changing the preimage?

24. Compare the two methods you have learned for translating a figure.
