

Transformational Puppet

Before you begin; Open a new document. Choose Geometry and Graphs.

Then Choose Home, System Info, Document Settings, and

change the display digits to 1. Choose MENU > View > Plane Geometry View.

1st-Draw a circle.

2nd-Draw a segment below the body to represent the segment. Make this as close to a vertical line as possible.

3rd-Place a POINT ON the segment to represent the shoulders of your puppet.

4th-Draw a vector in the lower left corner on page 1.3. This will be your translation vector.

5th-Move your pointer to where you think the new point will be. **Raise your hand** for me to check this point.

6th-Choose Menu, transformations, translation. Click on the "shoulder" point and then on the translation vector.

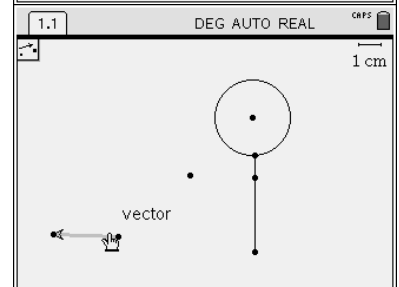
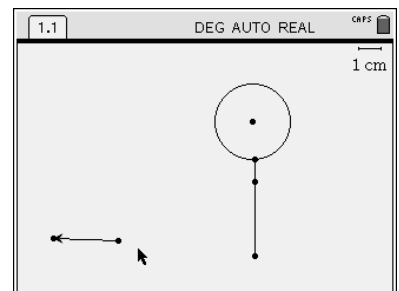
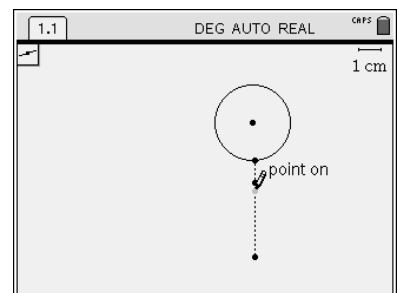
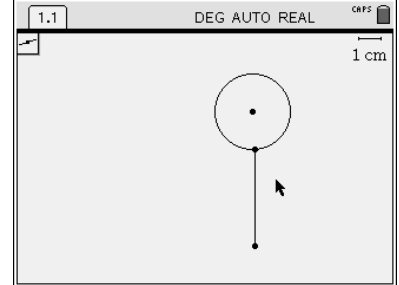
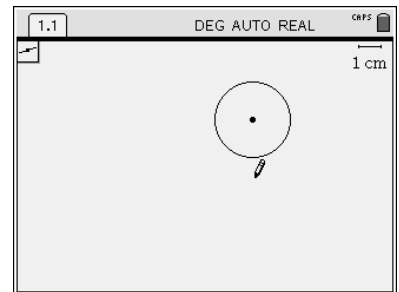
7th-Draw a segment to connect the shoulder point and the translated image.

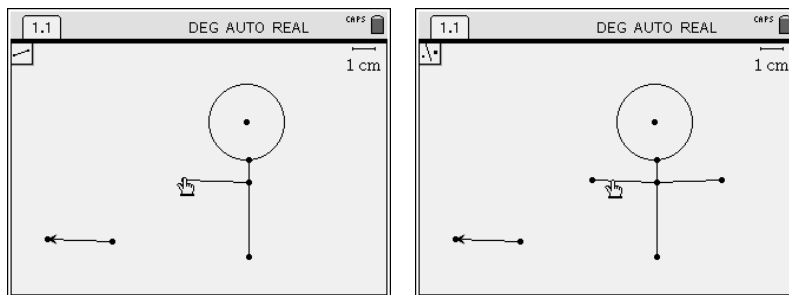
8th-Now you are going to reflect the left arm over the body.

Move your pointer to where you think the right hand will be and **raise your hand** for me to check it.

9th-Now reflect the left arm over the body. Choose Menu, Transformation. Click on the body segment and then the left arm segment that you are reflecting.

10th-Can you make your puppets arms shorter and longer? Can you change their position?





11th-Create a translation vector for the legs beginning at the end-point of the vector for the arms.

12th-Move your cursor to position of your left foot and **RAISE YOUR HAND** for me to come check it.

13th-Perform a translation of the bottom "body" point, draw your left leg

14th-You are going to reflect the left foot over the body, but 1st move your cursor to where the right foot will be **RAISE YOUR HAND** for me to check it.

15th-Now reflect the left leg over the body segment.

16th-How do you think the slopes of the 2 arms compare?

17- Test your theory by calculating the slope of each arm.

18-Move the arm translation vector and notice what happens to the slope. Why does this happen?

19-How do you think the slopes of the 2 legs compare?

20- Calculate the slopes of the legs to test your theory.

21-Show me your finished transformational puppet.

*****This activity is adapted for the TI-Nspire from the Transformational puppet activity for Cabri Jr. created by Gary Loney, Liberty High School, Frisco, Texas found on the Activities Exchange.**