Area of a Circle

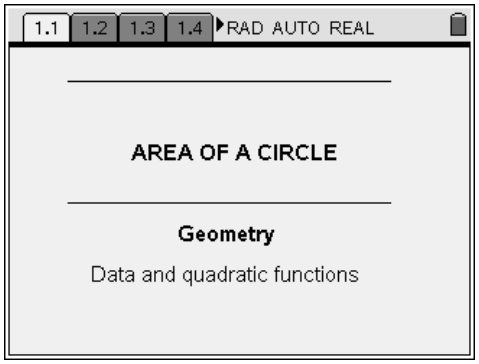
ID: 9420

Name _____

Class _____

In this activity, you will explore:

- *area of a circle*
- *modeling data with quadratic functions*
- *make conjectures from data*



Open the file *GeoAct13_AreaOfCircle_EN.tns* on your handheld and follow along with your teacher to work through the activity. Use this document as a reference and to record your answers.

In this activity, you will explore the area of a circle by capturing and modeling data with quadratic functions, first by transforming the graph of $y = x^2$, and then by performing a quadratic regression. *Follow your teachers instructions to:*

- Draw a circle and its radius, and measure the length of the radius and area of the circle
- Store the measurements as variables, perform an automatic data capture, and create a scatter plot of the data
- Manually fit a quadratic to the data, and perform a quadratic regression of the data. Record the equations below.

$y =$ _____ **f1**$(x) =$ _____

Exercises

1. Compare the equations above. Describe any similarities and/or differences.

2. What are the independent and dependent variables in this exploration?

3. What is the domain and range of both the functions?

4. Why is the domain restricted to the 1st quadrant?

5. Consider both functions, they are in the form $y = ax^2$. What does the constant value a represent in this context? What does the variable x represent?