

Playground Planner

Overview:

In this lab we will be:

- Determining the dimensions of a playground area in a local park
- Making a table of possible dimensions and perimeters of the playground
- Generation an equation from the table you made
- Graphing the equation you generated
- Explaining the meaning of the slope and y-intercept in this problem

Materials:

- Graph paper
- Data table
- Ruler
- Calculator

Procedure:

1. With a partner, read the scenario described below.
2. Use the graph paper to sketch several possible playground areas.
3. Fill in the perimeter data table based on your sketches.
4. Write an equation for the perimeter (y) in relation to the length (x)
5. Set up a graph for the data. Label the axes x =length(ft.), y =perimeter(ft)
6. Graph the line.
7. Explain the meaning of the slope and y-intercept.
8. Repeat steps #3-7 for the area of the playground.

Scenario:

You and your partner have been hired by the Department of Parks and Recreation to design a new playground in one of the city's parks. The playground must be rectangular in shape and the width must be 20 feet. The length of the playground must be at least 15 feet, and cannot exceed 50 feet.

Preliminary Playground Sketches

Washington

Applied

Math

Council

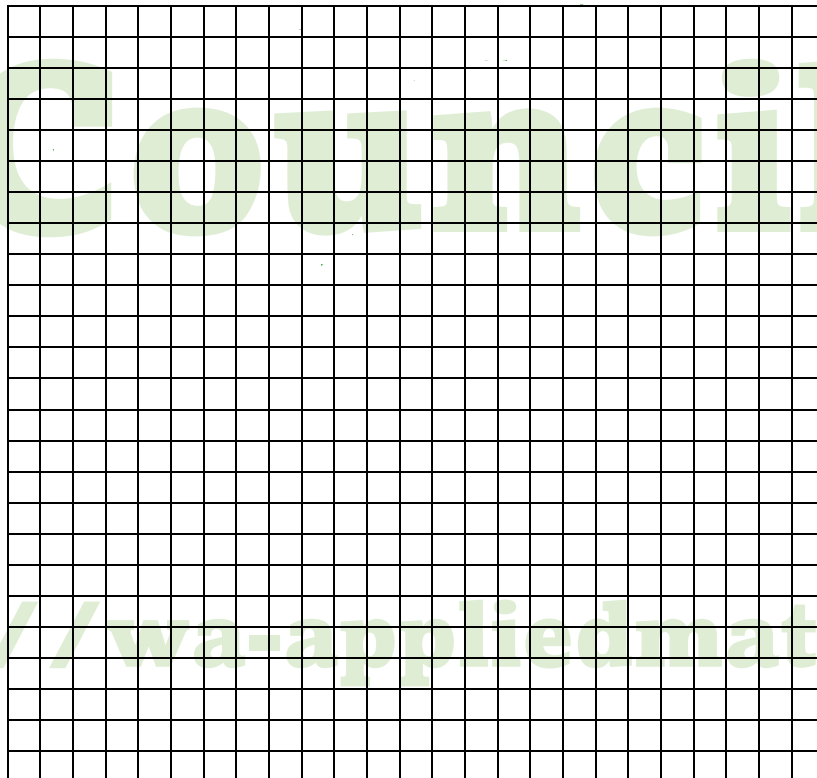
<https://wa-appliedmath.org/>

Perimeter Data Table

X (length in ft)	Y (perimeter in ft)

Equation: _____

Perimeter Graph

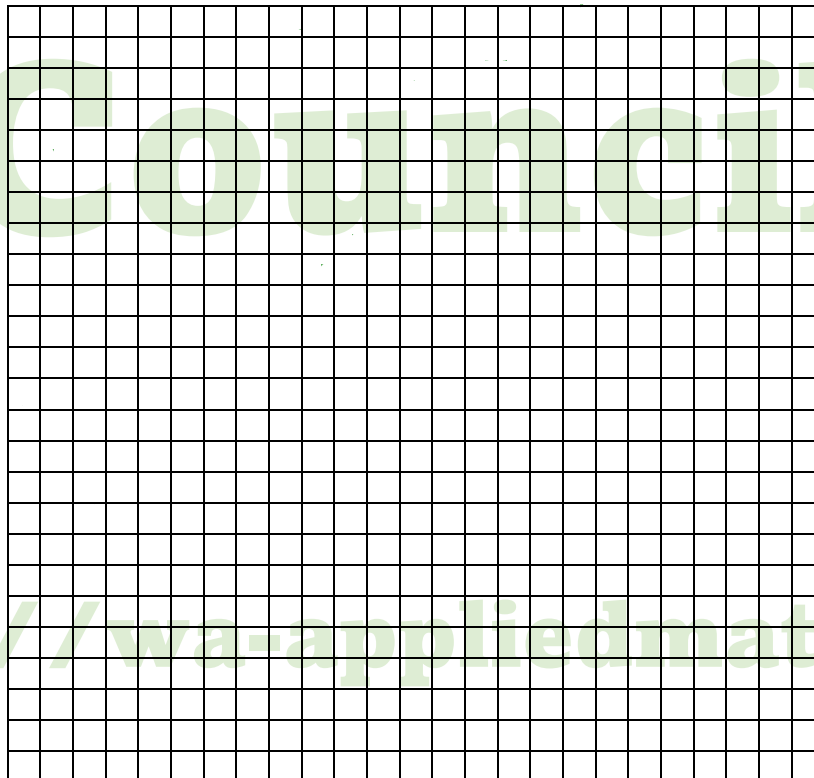


Area Data Table

X (length in ft)	Y (area in ft ²)

Equation: _____

Area Graph



Playground Budget

Now that you have explored possible dimensions for the playground, another consideration is the cost. The entire perimeter of the playground will be fenced at the cost of \$10.00 per linear foot. The entire area of the playground will be covered with bark, at the cost of \$7.00 per square foot. Your budget for the fence and bark combined is \$7500.00.

- Write an equation for the combined fence and bark costs
- Make a table of values
- Graph the line
- Decide on the best length for the playground, and explain why.

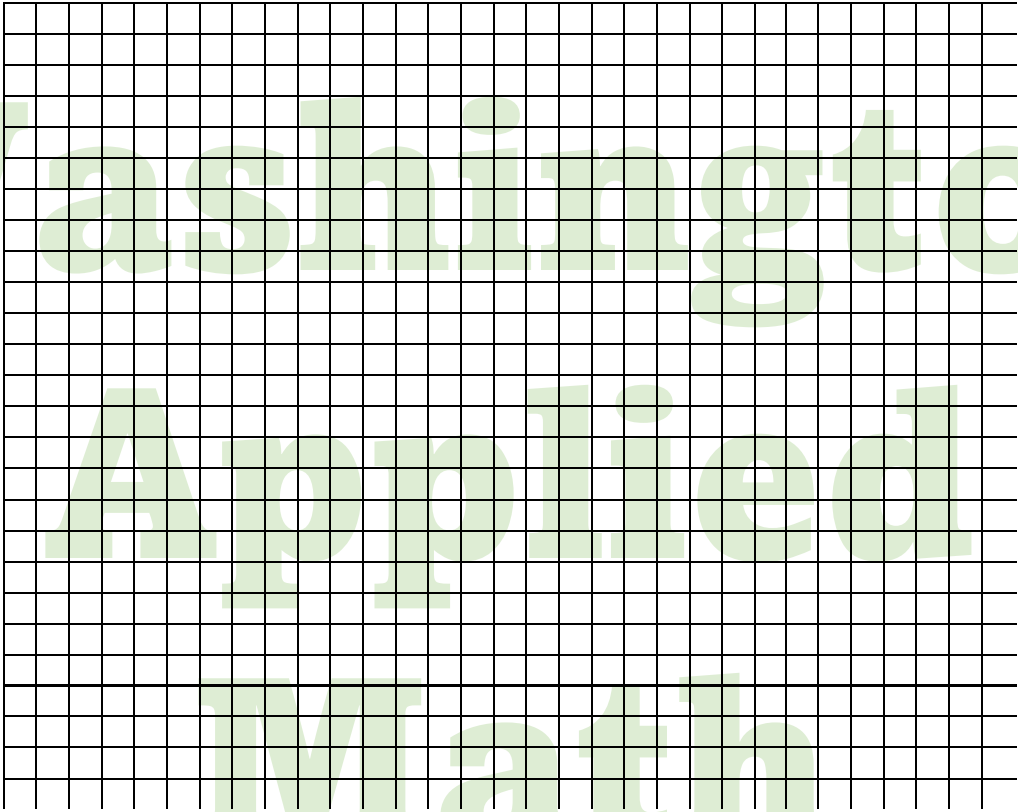
Equation: _____

Budget Data Table

X (length in ft)	Y (total cost in \$)

Budget Graph

Washington
Applied
Math
Council



Recommended Playground Dimensions: _____

Explanation: _____

<https://wa-appliedmath.org/>
