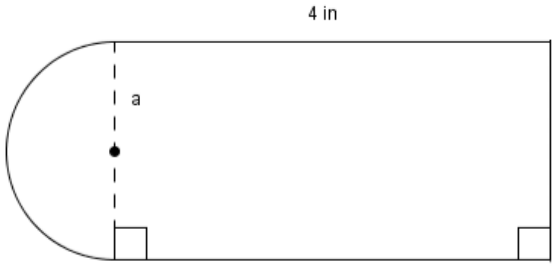
UNIT 1 Project (28pts)

Demonstrate your knowledge by giving clear, concise solutions to each problem. Be sure to include all relevant drawings and justify your answers (show all your work). You may show your solution in more than one way to investigate beyond the requirements of the problem.

1. Some important formulas are given below.

   Area of a circle is $A = \pi r^2$ where r is the radius of the circle.

   a) Write a formula for the area of the figure below. **(5pts)**



   b) Simplify the formula in part a. Justify each step in your simplification by naming the property used. **(5pts)**

   c) Find the area of the figure when a = 2 **(5pts)**

In each sentence, circle or highlight key words or phrases that indicate the mathematical operation and write the corresponding mathematical symbol above each. Then, write an equation for each sentence.

   a) Three times a number decreased by five is equal to twenty five. **(2pts)**

   b) The sum of the square of a number and a second number is eighteen. **(2pts)**

   c) A number multiplied by 6 and divided by five gives four more than a number. **(2pts)**

   d) One-half of a number added to itself equals twice the difference of the number and four. **(2pts)**

3. Think of a situation that can be modeled by the graph. Then, label the axes of the graph and write

several sentences describing the situation **(5pts)**