

Module 08: Problem Solving with Mathematical Functions

*Intro to Computer Science 1 - C++
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Programming Example 07

Ask a user for a single dimension (a)

$$\text{Area of Circle} = \pi r^2$$

$$\text{Area of Equilateral Triangle} = \frac{\sqrt{3}}{4} a^2$$

$$\text{Area of Square} = a^2$$

$$\text{Area of Pentagon} = \frac{1}{4} \sqrt{5(5+2\sqrt{5})} a^2$$

$$\text{Area of Hexagon} = \frac{3\sqrt{3}}{2} a^2$$

Programming Example 08

Amount of money in a savings account after one year can be calculated as:

$$A = P * (1 + R/T)^T$$

A = Total Amount after one year

P = Principal (initial balance)

R = Interest Rate (Annual)

T = Times compounded

Prompts and Input

- Just like units, **we must always clearly explain** what numbers we are asking the user for.
- If your program uses percentages in formulas, it will likely expect 0.07 for 7%
- However - that's not how users think! So adjust accordingly:
 - Specifically request them to enter 0.07
 - Better yet, let them enter 7, and turn it into 0.07 before using it!