

C Programming

Lab 4: Functions and Variables

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1 Functions

Maximum of three numbers (1)

- The problem:
 - ① Given three float numbers input in “main()”
 - ② Work out a function to calculate their maximum
 - ③ `int max3(float a, float b, float c)`

Greatest Common Divisor (1)

- The problem:
 - ① Given two numbers input in “main()”
 - ② Work out a function to calculate their GCD
 - ③ `int gcd(int a, int b)`

Approximate $\cos(x)$ (1)

$$\cos(x) = \sum_{n=1}^{\infty} \frac{(-1)^{(n-1)} x^{2n-2}}{(2n-2)!} = 1 - \frac{1}{2!}x^2 + \frac{x^4}{4!} - \frac{x^6}{6!} + \frac{x^8}{8!} \dots \quad (1)$$

- Requirements
 - Define function **cosx(double x)**

Find the largest prime number (1)

- The problem:
 - ① Given an input integer in “main()”
 - ② Find out a prime number that is the largest among all the prime numbers less than the given integer
 - ③ For example, $a = 31$, the largest prime number less than a is 29
 - ④ print out the largest prime number in “main()”
- Requirements
 - Define function `int isPrime(int a)`