AMA2222 Lab 8 (week 9)

8a) Write a void function named "simplify" that reads two positive integer variables as the numerator and denominator of a fraction. These numerator and denominators are updated as the fraction is simplified. Hint: you should use pass by reference. Then complete the program using "simplify". Two samples below are for reference.

(Sample 1)

```
Enter the numerator and denominator: 18 24
After simplification, we have: 3 4
```

(Sample 2)

```
Enter the numerator and denominator: 20 5
After simplification, we have: 4 1
```

8b) The integral below can be evaluated by reduction formula:

$$I_n = \int_1^2 (\ln x)^n \, dx \qquad I_n = 2(\ln 2)^n - nI_{n-1}, n \in \mathbb{N}$$

where $I_0 = 1$ is the initial term.

Write a program that prompt user to enter n and evaluate the integral I_n using a recursive function named "integral". Give your answer corrected to 3 decimal places.

```
Enter a non-negative integer n: 3
The value of I_n is: 0.101
```