**Structures and Interpretation of Computer Program**

**Exercise Chapter 1.2 Name:** Wan Huzaifah bin Wan Azhar

**Exercise 1.2.5 Greatest Common Divisor**

1. GCD(206, 40)

There are **18** applied remainder operations in normal-order evaluation.

GCD(206,40)

#if (40 == 0) a, else

GCD(40, (remainder 206 40))

#if (**remainder** (206 40) == 0) a, else

GCD( (remainder 206 40), (remainder 40 (remainder 206 40)))

#if ( (**remainder** 40 (**remainder** 206 40)) == 0) a, else

GCD( (remainder 40 (remainder 206 40)), (remainder (remainder 206 40) (remainder 40 (remainder 206 40))))

#if ( (**remainder** (**remainder** 206 40) (**remainder** 40 (**remainder** 206 40))) == 0) a, else

GCD( (remainder (remainder 206 40) (remainder 40 (remainder 206 40)))) (remainder ( (remainder 40 (remainder 206 40)) ) ( (remainder (remainder 206 40) (remainder 40 (remainder 206 40))) ) )

#if ( (**remainder** ( (**remainder** 40 (**remainder** 206 40)) ) ( (**remainder** (**remainder** 206 40) (**remainder** 40 (**remainder** 206 40))) ) == 0, a,

#(**remainder** (**remainder** 206 40) (**remainder** 40 (**remainder** 206 40))))

There are **4** applied remainder operations in applicative order evaluation.

(gcd 206 40)  
(gcd 40 (remainder 206 40))  
(gcd 40 6)  
(gcd 6 (remainder 40 6))  
(gcd 6 4)  
(gcd 4 (remainder 6 4))  
(gcd 4 2)  
(gcd 2 (remainder 4 2))  
(gcd 2 0)  
2