Assignment 8

Q1. Divisors

Of the list given select all of the ones that are proper divisors of the given number

Q1.1. Six

Proper divisors of 6

Q1.2. Five

Proper divisors of 5

Q1.3. Eight

Proper divisors of 8

Q1.4. Twelve

Proper divisors of 12

Q2. Residues

Calculate the following residues

Q2.1. Modulo 2

$$3\equiv_2$$

Q2.2. Modulo 3

$$5\equiv_3$$

Q2.3. Modulo 10

$$14234578\equiv_{10}$$

Q2.4. 369369 mod 9

$$369369\equiv_9$$

Q3. Change of Base

Determine the following changes of base

Q3.1. 31 base 8 in Decimal

What is 31 base 8 in decimal (base 10)?

Q3.2. 101 base 10 in binary

What is 101 base 10 in binary (base 2)

Q4. Perfect Numbers

A **Perfect Number** is a number that is equal to the sum of its proper divisors. Determine whether the following are perfect numbers or not.

Q4.1. 6 is a Perfect Number

6 is a Perfect Number

Q4.2. 12 is a Perfect Number

12 is a Perfect Number

Q4.3. 24 is a Perfect Number

24 is a Perfect Number

Q4.4. 28 is a Perfect Number

28 is a Perfect Number