

MATH 113 SPRING 2023 NUMBER REVIEW DAY PROBLEMS

1. PROBLEM 1A

No

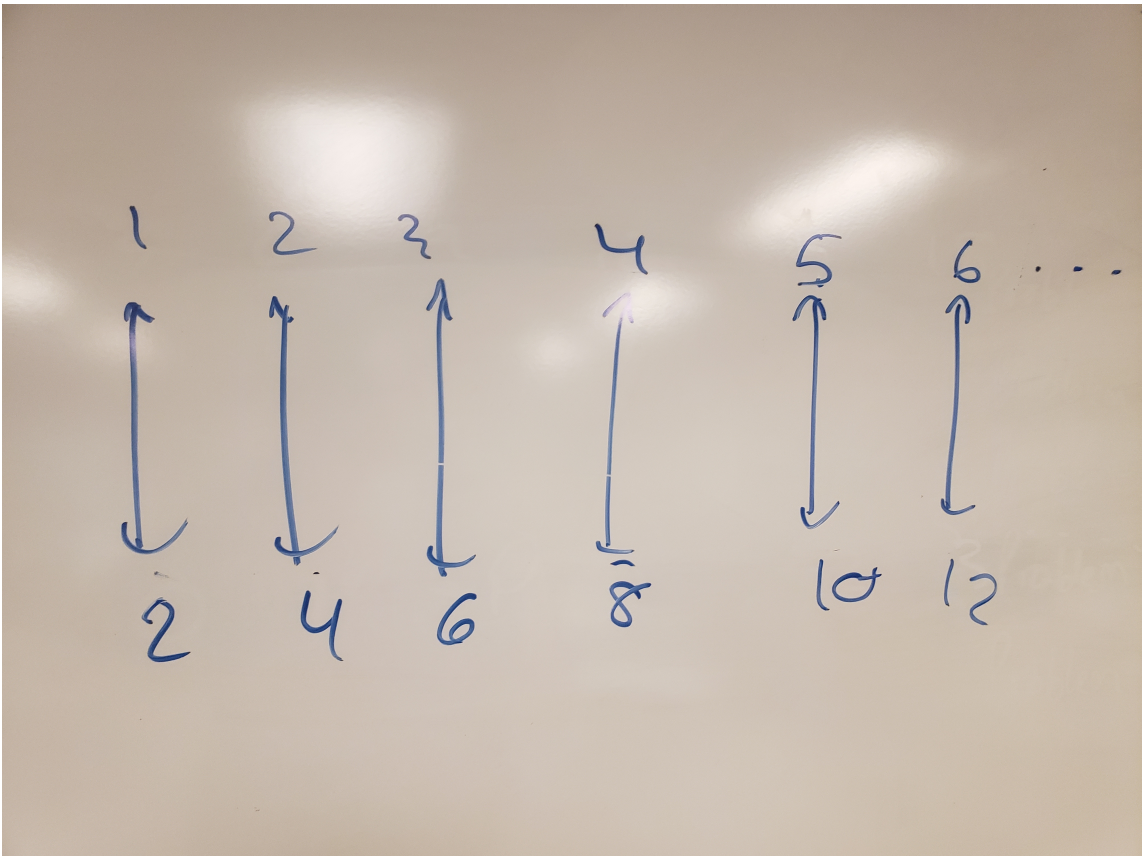
2. PROBLEM 1B

No

3. PROBLEM 2

To get the next term, multiply the previous term by 2 and add 1
The next terms are 95 and 191.

4. PROBLEM 3



5. PROBLEM 4

GCD is $2 \cdot 2 = 4$ LCM is $2 \cdot 2 \cdot 2 \cdot 2 \cdot 2 \cdot 3 \cdot 5 = 480$

6. PROBLEM 5

- i) There are infinitely many pairs of primes that are 2 apart
- ii) 3 and 5; 41 and 43; 17 and 19 (there are more)
- iii) 3 and 17
- iv) Answers will vary
- v) Yes! There are infinitely many prime numbers, and there is a one-to-one correspondence with the natural numbers.

7. PROBLEM 6

$$\psi = \frac{2}{2 + \frac{2}{2 + \frac{2}{\dots}}}$$

$$\psi = \frac{2}{2 + \psi}$$

$$\psi(2 + \psi) = 2$$

$$2\psi + \psi^2 = 2$$

$$\psi^2 + 2\psi - 2 = 0$$

8. PROBLEM 7

28.57 centimeters (rounded)

9. PROBLEM 8

