Homework 1

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Homework 1-1

2/2 points (graded)

Choose all the prime numbers.

- [x] 2011
- [ ] 2013
- [ ] 2015
- [x] 2017
- [ ] 2019
- [ ] 2021
- [ ] 2023

✔

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✔ Correct (2/2 points)

Homework 1-2

2.0/2.0 points (graded)

Fill an integer into each blank.

$\varphi(1)$

1 ✔

1

$\varphi(2)$

1 ✔

1

$\varphi(3)$

2 ✔

2

$\varphi(4)$

2 ✔

2

$\varphi(6)$

2 ✔

2

$\varphi(12)$

4 ✔

4

$\varphi(1)+\varphi(2)+\varphi(3)+\varphi(4)+\varphi(6)+\varphi(12)$

12 ✔

12

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Homework 1-3

2.0/2.0 points (graded)

In 2004, Green and Tao proved the following amazing result on prime numbers: for any given N, there exist an arithmetic progression of length N consisting of prime numbers only. Tao won a Fields Medal in 2006. For example, 3, 5 and 7 is an arithmetic progression of length 3 consisting of prime numbers only.

Find the maximum length of arithmetic progressions consisting of prime numbers only whose initial term is 5.

5 ✔

5

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Homework 1-4

2/2 points (graded)

What is the number of prime numbers less than $1,000,000$ with last digit 3 (such as $3, 13, 23, 43,$ ...)?

Choose the closest number.

- $10,000$
- $19,000$ ✔

- 39,000
- 47,000

Submit You have used 2 of 2 attempts

✔ Correct (2/2 points)

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