



Course > Week 1 > What a... > Proble...

## Problem (3-4)

🔖 Bookmark this page

### Problem 3

1/1 point (graded)

Choose the correct statement on the prime number theorem.

- ☐ By the prime number theorem, we can calculate the exact number of prime number less than  $N$  for any  $N$ .
- ☒ The prime number theorem says the ratio of the number of prime numbers less than  $N$  divided by  $N/\log(N)$  converges to 1 as  $N$  goes infinity. ✓
- ☐ The prime number theorem was conjectured by Legendre in the end of the 18th century, and finally proved by Gauss in the beginning of the 19th century.
- ☐ As a corollary of the prime number theorem, we can prove there are infinitely many Mersenne prime numbers.

Submit

You have used 1 of 2 attempts

**i** Answers are displayed within the problem

### Problem 4

1/1 point (graded)

Calculate the following values of Euler's totient function  $\varphi(N)$ .

$\varphi(6)$ 

✓ Answer: 2

 $\varphi(8)$ 

✓ Answer: 4

 $\varphi(11)$ 

✓ Answer: 10

 $\varphi(65537)$ 

✓ Answer: 65536

You have used 1 of 2 attempts

**i** Answers are displayed within the problem

[Learn About Verified Certificates](#)

© All Rights Reserved



English ▼

© 2012–2017 edX Inc. All rights reserved except where noted. EdX, Open edX and the edX and Open edX logos are registered trademarks or trademarks of edX Inc. | 粤ICP备17044299号-2

POWERED BY  
**OPENedX**

