

# Ask Math Anything

Daily Challenge with Po-Shen Loh

23 June 2020

## Abstract

Professor Po-Shen Loh solves problems on his YouTube channel. A selection for practice.

Reference: [Ask Math Anything - Daily Challenge with Po-Shen Loh](#)

### 1 A Sum Problem

Find  $a$  and  $b$  for

$$(3^{2006} + 2006)^2 - (3^{2006} - 2006)^2 = a^b$$

### 2 A Sum Problem

$$\frac{2020^2 - 2012^2}{2017^2 - 2015^2}$$

### 3 A Sum Problem

Milly adds up all integers from 1 to  $n$  inclusive. Billy adds up all integers from  $n + 1$  to 20 inclusive. They obtain the same sum. What is the value of  $n$ ?

### 4 A Percentage Problem

10% of the students score 70pts each.

35% of the students score 80pts each.

30% of the students score 90pts each.

25% of the students score 100pts each.

What is the difference between the median and the mean?