

February 1st

The four digit number A48B is as large as possible and is divisible by 36.

Find A and B.



The first 15 multiples of 36....

36, 72, 108, 144, 180, 216, 252, 288, 324, 360, 396, 432, 468, 504, 540

Assuming that the answer is above 7200 (36×20)

If A is 7:

Since $7488 = 7200 + 288$ then B could be 8.

If A is 8:

$7200 + 504 + 504 = 8208$, so is a multiple of 36

Adding 216, 252 and 288 will make numbers in the 8400s, but none in the 8480s, so A can't be 8.

If A is 9:

$9000 = 7200 + 1800$, so is a multiple of 36

since there are no number in the 480s that are multiples of 36, then A can't be 9.

Therefore A=7 and B=8