

### Problem 3: Evaluate the Sum

---

Let  $a \neq 1$  be a positive real number such that  $a^{2020} - 5a^2 + 4 = 0$ . Find the value of the sum  $a^2 + a^4 + \dots + a^{2018}$ .

As always, show your work, fully explain and justify your answer. A solution mainly obtained by computers or calculators will not be accepted.

---

Posting Date 1/31/2020. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 (e-mail or hard-copy, but hard copy submissions must include a time stamp) by 4 pm on 2/14/2020.