

MATH 201 FALL 2020 PRACTICE TEST #2

Write clearly, on separate paper.

- (1) [5pts.] Show that $\log_5 32$ is irrational.
- (2) [5pts.] Let $\{E_i \mid i \in I\}$ be an indexed family of nonempty subsets of a bounded subset E of \mathbb{R} . Show that

$$\inf \bigcup_{i \in I} E_i = \inf \{ \inf E_i \mid i \in I \}.$$

- (3) [4pts.] Find a number M such that $|x^3 - 4x^2 + 7| \leq M$ for all $-3 \leq x \leq 2$. Justify your claim.