

MATH 201 FALL 2018 PRACTICE TEST #1

*Write clearly, on separate paper. All questions carry equal weight.
You will receive credit for your three best answers.*

Prove or disprove three of the following statements:

(1) For sets A, B , one has

$$\mathcal{P}(A) \setminus \mathcal{P}(B) = \mathcal{P}(A \setminus B).$$

(2) For integers x and y , if $x+5y$ is odd, then x and y have opposite parity.

(3) There are distinct integers a and b such that $a \mid b$ and $b \mid a$.

(4) If $x < y$, then $x^3 < y^3$.