## Linked auctions competition

Think of an integer $x > 0$ and submit it as your entry to this competiton.

You will take part in three sealed-bid auctions:

1. a first-price auction (highest bidder wins and pays their bid) where you bid $x$;
2. a second-price auction (highest bidder wins and pays the second-highest bid) where you bid $\max(1000 - x, 0)$;
3. an all-pay auction (highest bidder wins, all bidders pay) where you bid $|500 - x|$.

The competition winner will be the person who minimises

$$\frac{\text{amount paid}}{\text{number of auctions won}}.$$

Ties decided by random-number selection.