Extra Credit 1

Due: April 11, 2022 **Points:** 20

Remember, you must *justify all your answers*.

1. The classical batch processing system completely ignores the cost of increased waiting time for users. Consider a single batch characterized by the following parameters:

   - M average mounting time
   - T average service time per job
   - N number of jobs
   - S unit price of service time
   - W unit price of waiting time per user

   Show that the optimal batch size minimizing the cost of service time and waiting time per user within a single batch is

   $$N_{opt} = \sqrt{\frac{MS}{TW}}$$