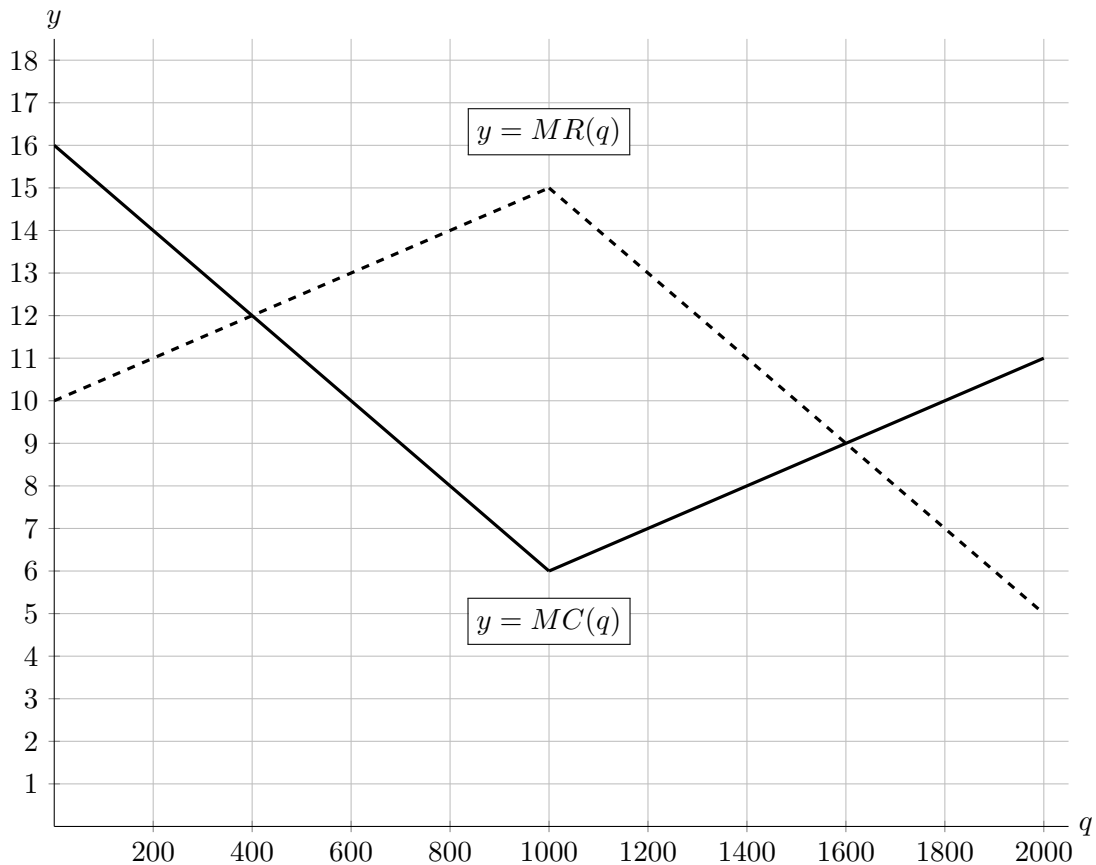


9. [13 points] The graph below shows the marginal revenue MR (dashed) and marginal cost MC (solid), in dollars per book, for Zelda to print q copies of a certain book. The machinery Zelda needs to start printing costs 800 dollars, but there are no other fixed costs.



You do not need to show work for this problem.

- [1 point] At what value(s) of q in the interval $[0, 2000]$ is marginal revenue maximized?
- [2 points] At what value(s) of q in the interval $[0, 2000]$ is cost minimized?
- [2 points] How many books should Zelda print in order to maximize her profit?
- [2 points] At which values of q in the interval in the interval $(0, 2000)$ is profit concave up? Give your answer as one or more intervals.
- [3 points] Write an expression involving one or more integrals for Zelda's profit, in dollars, when she prints 1500 copies of her book. Your expression may involve $MR(q)$ and/or $MC(q)$. Do *not* attempt to evaluate the integral.
- [3 points] Suppose that Zelda currently plans to print only 200 copies of the book. If she prints 800 copies of the book instead, will this increase or decrease profit? By how much?

You must go upload your submissions for each problem to Gradescope within 30 minutes of finishing your exam.

If you have difficulty doing so, first email all work to your instructor, then continue to submit your work to Gradescope even if it is past the 30 minute deadline.