

Problem Set 7

1. Recall that in class, we have defined $\cos(x) = 1 - x^2/2 + x^4/4! - \dots$. Suppose that we define a number “ $\varpi/2$ ” as follows: it is the smallest positive number such that $\cos(\varpi/2) = 0$. Show that this definition makes sense (there is such a number). Note: you can use only the properties of \cos proved in class, plus additionally you may take for granted and use the fact that $\cos(x)$ is continuous (since that can be proved by the same method as that used in class for the exponential map). (5 points) *Please write up this problem carefully in LaTeX.*
2. Problem 14 on p. 100 (4 points).
3. Problem 1 on p. 114 (3 points).

Total: $5 + 4 + 3 = 12$ points.

MIT OpenCourseWare
<http://ocw.mit.edu>

18.100C Real Analysis
Fall 2012

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.