

Reminders: the ungraded homework is still assigned – the answers are in the back, and these may/will show up on the second exam and the final. The symbol (\mathcal{E}) before a problem means that it, or something very much like it, has appeared on an exam. The TA for the course is Mr. Hua Tao. His office hours will be Tuesday 5:00 - 6:00 and Thursday 4:00 - 5:00 in 155 Altgeld Hall. You may quote any theorem or example from class or the book ... PROVIDED that it has been proved there. It is not acceptable to quote an unproved homework problem as a step in proving an assigned homework problem!

1. – 16.5 (ungraded).
 2. – 17.1 (ungraded).
 3. – 17.9 (ungraded).
 4. – 17.2.
 5. – 17.4.
 6. – 17.10ab.
 7. – (\mathcal{E}) Let c be a real number in the interval $(0, 3)$ and let $f(x) = x^5 + x^4 - 5x^2 + c$. Prove that there are at least two positive values of x for which $f(x) = 0$.
 8. – (\mathcal{E}) Two unrelated true-false problems – proof is required:
 - a. If f is a continuous function on $[0, 1]$ and $f(x) > 0$ for all $x \in [0, 1]$, then there exists a positive integer n so that $f(x) > \frac{1}{n}$ for all $x \in [0, 1]$.
 - b. If $f(x) = (x - 1)^3 \sin(\frac{1}{x-1})$ for $x \neq 1$ and 0 for $x = 1$, then f is continuous at $x = 1$. (Yeah, $\epsilon - \delta$.)
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9. – 15.6.
10. – 18.10.