HOMEWORK F
Instructor: Yoonseok Lee
Due: April 19, 2018

1. CH33 E-14.

2. CH33 E-32.

3. CH33 E-34.

4. CH33 P-1.

5. CH33 P-4.
Each side of the polygon has the length of $2a\sin(\pi/n)$. What is the length from the center of the circle to the middle of the side?

6. CH33 P-8.

7. CH33 P-13.

8. CH34 P-1.

9. CH34 P-5.

10. CH34 P-8.
Since $\vec{B} = const.$ $\frac{d\Phi}{dt} = B\frac{dA}{dt}$. What is $\frac{dA}{dt}$? One revolution in time of $1/f$.

11. CH34 P-9.

12. CH34 P-11.

13. Consider a cylinder of radius r and length L made out of a material with resistivity ρ. Its symmetry axis is along $\hat{k}$. This cylinder is subjected to a time dependent magnetic field $\vec{B} = B(t)\hat{k}$. Show that the Joule heating from the Eddy current is given by

$$P = \frac{\pi r^4 L}{8\rho}\left(\frac{dB}{dt}\right)^2.$$

Hint will be given during the lecture.