

Physics 386, Spring 2008
Electromagnetism (II)

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Due Mon. 10-March 2008

PROBLEM SET 5

Reading: Griffiths, Chapters 9.3 – 10.1

1. Griffiths 9.10
2. Griffiths 9.11
3. Griffiths 9.14
4. Griffiths 9.15 (Hint: Since the relations is to be true for all x , consider $x = 0$. This gives a trivial result for the relation between A , B , and C . To determine the relation between a , b , and c , take the first and second derivatives of the left and right hand sides, set $x = 0$ and see what it tells you.)
5. (a) Write the expressions for the electric and magnetic fields a right circularly polarized wave propagating in the positive z -direction. Assume that the electric field is oriented along the positive x -axis for $(z, t) = (0, 0)$.
(b) Repeat part (a) for a left circularly polarized wave.
(c) Show that a linearly polarized wave can be thought of as the linear superposition of right and left circularly polarized waves.
6. Griffiths 9.22(b)