(pg 2) Maxwells Equations & the Wave Equation (draft)

Maxwell’s equations in free space.
The starting point of this course is where the first year electromagnetism course ended, namely with the four Maxwell’s equations and the electromagnetic wave equation. A review of these equations is therefore a good place to start.
Beginning with the simplest situation of Maxwell’s equations in a vacuum (no charges or currents). There are a set of four equations, established by Maxwell, that relate the magnetic fields and the electric fields. These equations may be written in differential form as:

image.png

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