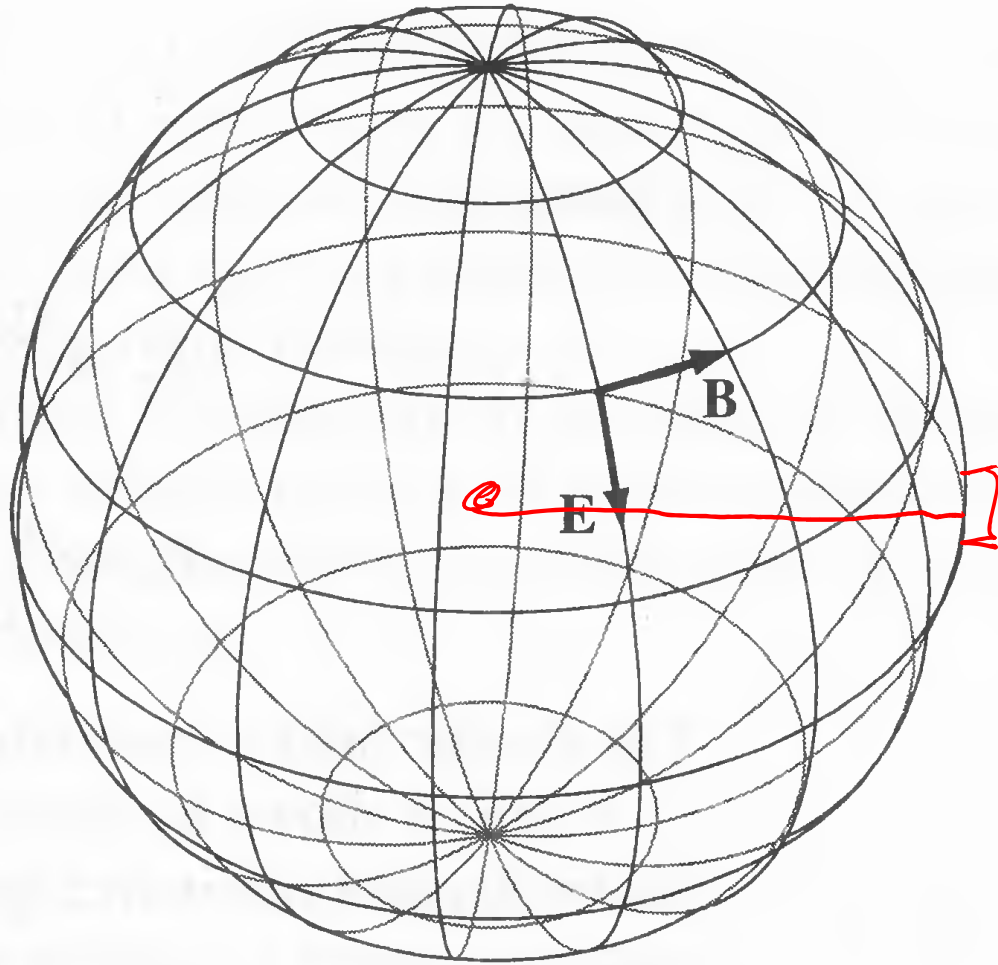


A) Yes

B) No



Where do spherical waves come from?

Where do plane waves come from?



Wireless-G Broadband Router
With SpeedBooster
LINKSYS®

Cisco Systems
Secure Easy Setup
Power DMZ
Wireless-G Ethernet
WLAN 1 2 3 4 Internet
Model WRT54GS

LINKSYS®

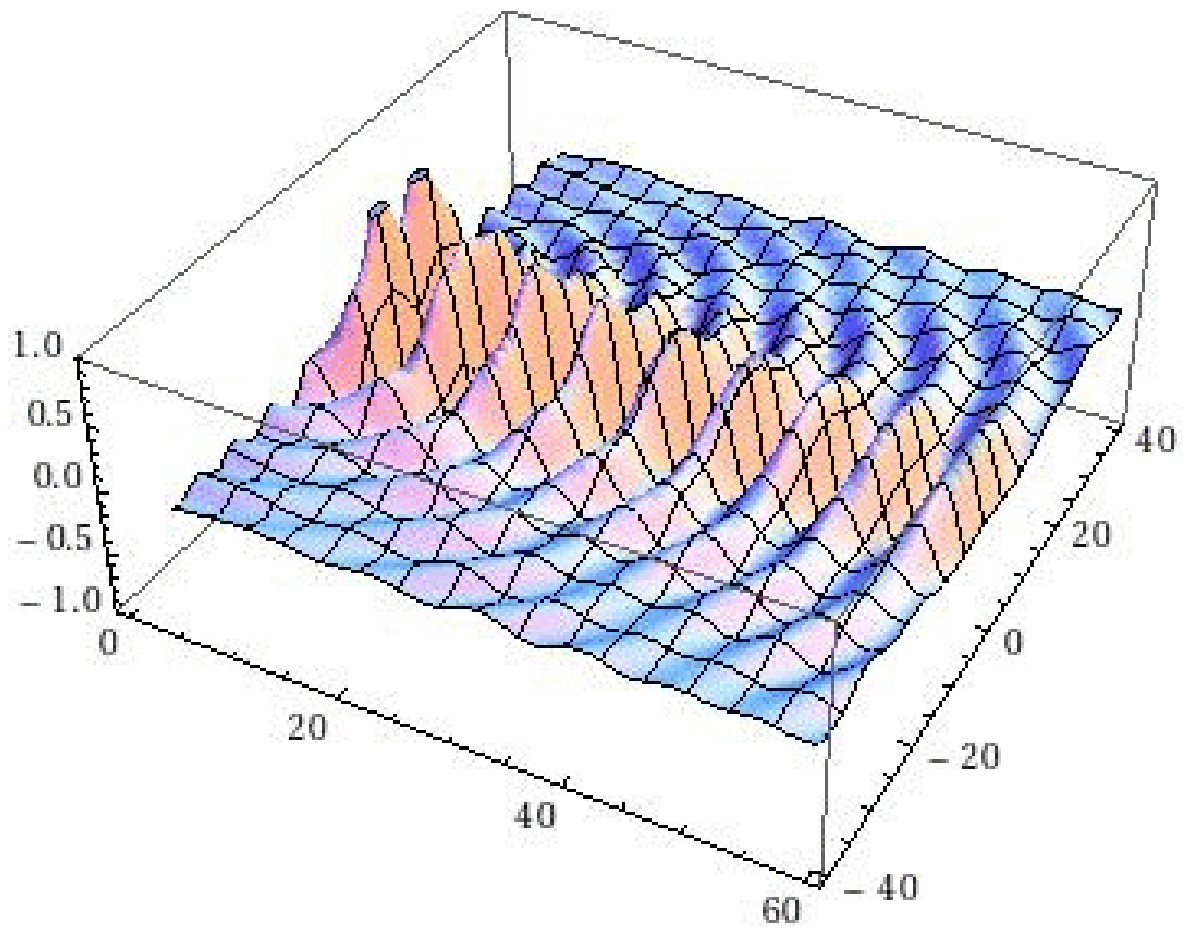
Plane waves based on sines and cosines constitute a basis within which other waves can be expressed

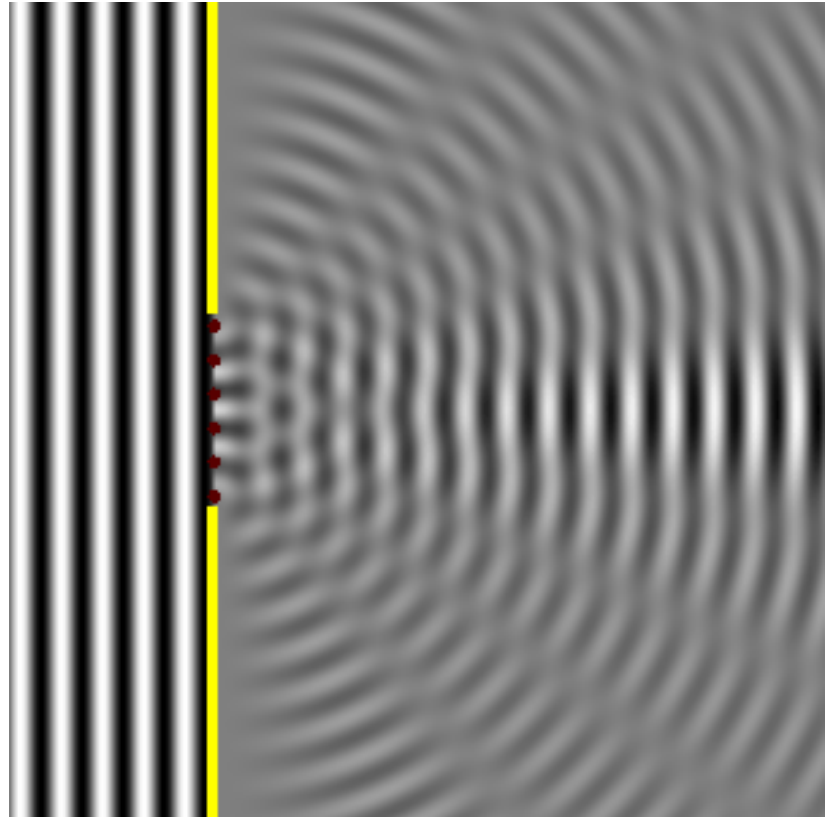
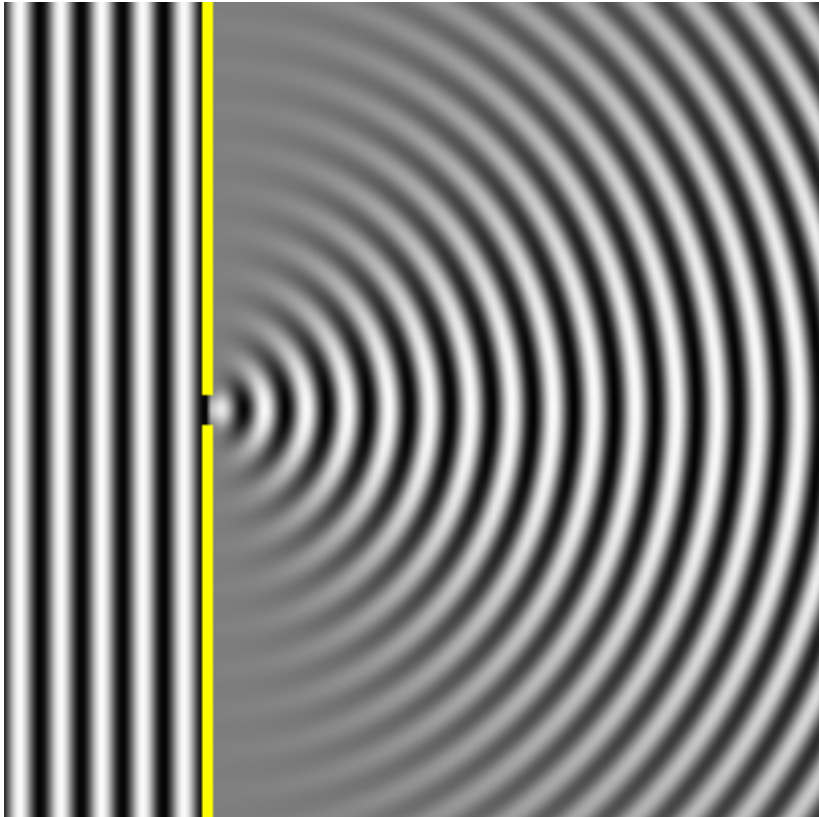
Spherical wave solutions based on Bessel functions constitute a different basis

$$\mathbf{E}(\mathbf{x}) = \sum_{l,m} \left[a_{\pm}(l, m) j_l(kr) \mathbf{X}_{lm} + \frac{i}{k} b_{\pm}(l, m) \nabla \times j_l(kr) \mathbf{X}_{lm} \right]$$

$$c\mathbf{B}(\mathbf{x}) = \sum_{l,m} \left[\frac{-i}{k} a_{\pm}(l, m) \nabla \times j_l(kr) \mathbf{X}_{lm} + b_{\pm}(l, m) j_l(kr) \mathbf{X}_{lm} \right]$$

Spherical wave decomposition of a plane wave





Diffraction – Understandable by breaking down sources into collections of point sources producing spherical waves