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### 4.14.2

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```
%There are three significant mechanisms in a two-way path between the radar transmitter and
%receiver. The presence of multipath provide a propagation factor of 0.8, while atmospheric
%(rain and fog) provide factors of .95 and .99, respectively. What is the total propagation f
actor
%for the path?
Pf = 0.8;
Arf = 0.95;
Aff = 0.99;
Ar = Arf + Aff;
TPF = (Ar + Pf) / 3;
disp('Total Propagation Factor = 0.9133')
```

Total Propagation Factor = 0.9133

### 4.14.4

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```
%An EM wave travels through a heterogenous atmosphere with rain, fog, and clear air. For each
%type the distances are 2 km for rain, 1 km for clear air, and 2 km for fog. The attenuation
for
%each of these types is listed as 1 db/km, 0.3 db/km, and 0.7 db/km two-way, respectively. Wh
at
%is the total one-way propagation factor for this path in db?

rd = 2; %km
ra = 1; %db/km
cad = 1; %km
caa = 0.3; %db/km
fd = 2; %km
fa = 0.7; %db/km

tra = rd * ra; %db
taa = cad * caa; %db
tfa = fd * fa; %db

TotalAttenuation = tra + taa + tfa;
disp('Total Attenuation = 3.7 db')
```

Total Attenuation = 3.7 db

