Name Removed

Wireless Networking – Homework 2

**P 3.2**

Lf = 32.45 + 20\*log10(fc) + 20\*log10(d)

Fc = 900

d = 2

Lf = 32.45 + 20\*log10(900) + 20\*log10(2)

Lf = 97.56

Lf = Pt/Pr

Lf\*Pr = Pt

Pr = Pt/Lf

Pt = 5

Pr = 5/97.56

= 0.0513

**P 3.4**

1. Pdbm = 10\*log10(1000\*Pw)

Pw = 40

Pdbm = 10\*log10(1000\*40)

Pdbm = 46.021

= 45.021 dBm

1. If Gt = Gr = 0dB, then

Pr = AeGtPt/(4\*pi\*d^2) = Ae\*0\*Pt/(4\*pi\*dt^2)

= 0

1. Lf = 32.45 + 20\*log10(fc) + 20\*log10(d)

fc = 900MHz

d = 1km

Lf = 32.45 + 20\*log10(900) + 20\*log10(1)

= 91.5349

**P 3.7**

Doppler shift (fd) = v/lambda \* cos theta

v = 40 km/h

lambda = 900MHz

theta = 41 degrees

fd = 40/900 \* cos(41)

= 0.03354