Oluwakemi Omotonde
15 605 Assignment #8
Problem Set #1

Your colleague either commutes by train or by bus. 20 days
= train w/ .9 probability of being on time. 10 days = bus
w/ .5 probability of being on time. Given she is on time
today, what is the probability the she took the bus today?

$P.\text{bus} = .5$

$\text{ratio} = ^{10}/_{30} = \frac{1}{3}$

$P.\text{train} = .9$

$\text{ratio} = ^{20}/_{30} = \frac{2}{3}$

$^{3.9}/_{10} \cdot \frac{2}{3} = ^{18}/_{30}$

prob. bus $= .5 \cdot \frac{1}{3} = \frac{1}{2} \cdot \frac{1}{3} = \frac{1}{6}$

whole $= \frac{1}{6} + 3/5 =$

$\frac{1}{6} : \frac{5}{30}$

$\frac{3}{5} = \frac{18}{30}$

$$\frac{\frac{1}{6}}{\frac{1}{6} + 3/5} = \frac{\frac{1}{6}}{^{23}/_{30}} = \frac{1}{6} \cdot ^{30}/_{23} = \boxed{^{5}/23 \approx .2174}$$