6. 20% of a company's television sets are manufactured at a plant in Portland and 80% at a plant in Houston. Of those made in Portland, 2% are defective, and of those made in Houston 5% are defective.

a) Draw a tree diagram representing this situation.

```
   P
     \__ 0.2  / 0.8
       \   /   \\
        D  G  H
              \  /  \\
             \0.02/0.98 0.05/0.95
                D  G    D  G
                      \  /  \\
                       \0.04/0.96 0.04/0.76
```

b) What percentage of their total production is defective?

\[0.004 + 0.04 = 0.044 \approx 4.4\%\]

c) If you buy a defective set from the company, what is the probability it was made in Houston?

\[
P(H \mid \text{Def}) = \frac{P(\text{Hous, Def})}{P(\text{Def})} = \frac{0.04}{0.004 + 0.04} = \frac{0.04}{0.044} \approx 0.91\]