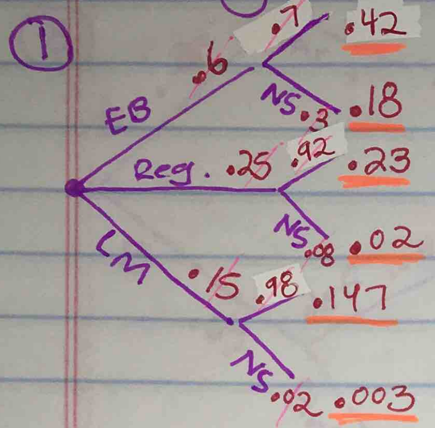
AFM HW 5 - Using Tree Diagrams

① 

ⓑ P(no show) .18+.02+.003 = $\boxed{.203}$ or 20.3%

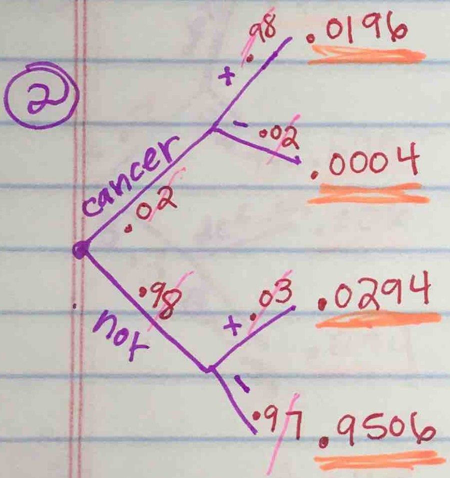
ⓒ P(no show AND LM) $\boxed{.003}$ or .3%

ⓓ P(noshow AND EB) $\boxed{.18}$ or 18%

ⓔ P(LM | NS) $\frac{.003}{.203} = \boxed{.0148}$ or 1.48%

ⓕ P(Reg | NS) $\frac{.02}{.203} = \boxed{.0985}$ or 9.85%

ⓖ P(EB | Show up) $\frac{.42}{.797} = \boxed{.527}$ or 5.27%

② 

ⓑ P(+ | cancer) $\frac{.0196}{.02} = \boxed{.98}$

ⓒ P(+ | not) $\frac{.0294}{.98} = \boxed{.03}$

ⓓ P(− | cancer) $\frac{.0004}{.02} = \boxed{.02}$

ⓔ P(− | not) $\frac{.9506}{.98} = \boxed{.97}$

ⓕ P(pos) = .0196+.0294 = $\boxed{.049}$

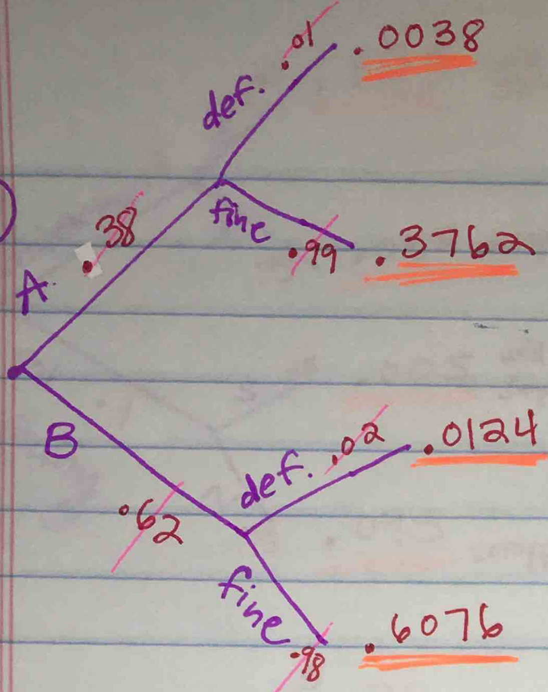
P(neg) = .0004+.9506 = $\boxed{.951}$

ⓖ P(cancer | +) = $\frac{.0196}{.0294+.0196} = \frac{.0196}{.049} = \boxed{.4}$

ⓗ P(not | +) = $\frac{.0294}{.0294+.0196} = \frac{.0294}{.049} = \boxed{.6}$

ⓘ P(cancer | −) = $\frac{.0004}{.9506+.0004} = \frac{.0004}{.951} = \boxed{.00042}$

(3)



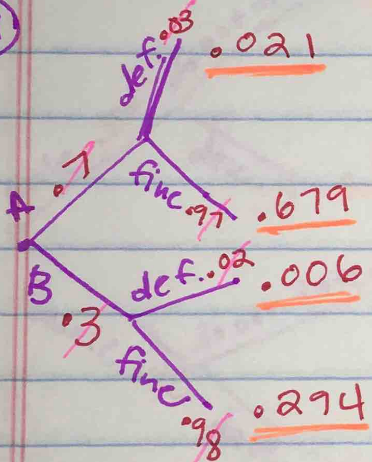
(a) P(not defective) = .3762 + .6076
= $\boxed{.9838}$

(b) $P(B \mid \text{not def.}) = \dfrac{.6076}{.3762+.6076} = \boxed{.6176}$

(c) $P(A \mid \text{def}) = \dfrac{.0038}{.0038+.0124} = \boxed{.2346}$

(d) $P(B \mid \text{def}) = \dfrac{.0124}{.0038+.0124} = \boxed{.7654}$

(4)

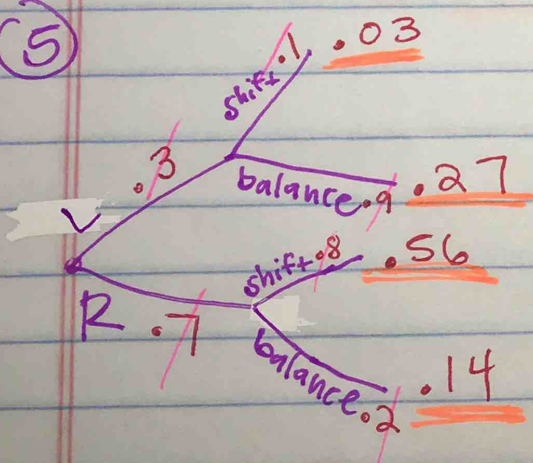


(a) P(defective) .021 + .006 = $\boxed{.027}$

(b) $P(A \mid \text{defective}) \dfrac{.021}{.027} = \boxed{.778}$

$P(B \mid \text{defective}) \dfrac{.006}{.027} = \boxed{.222}$

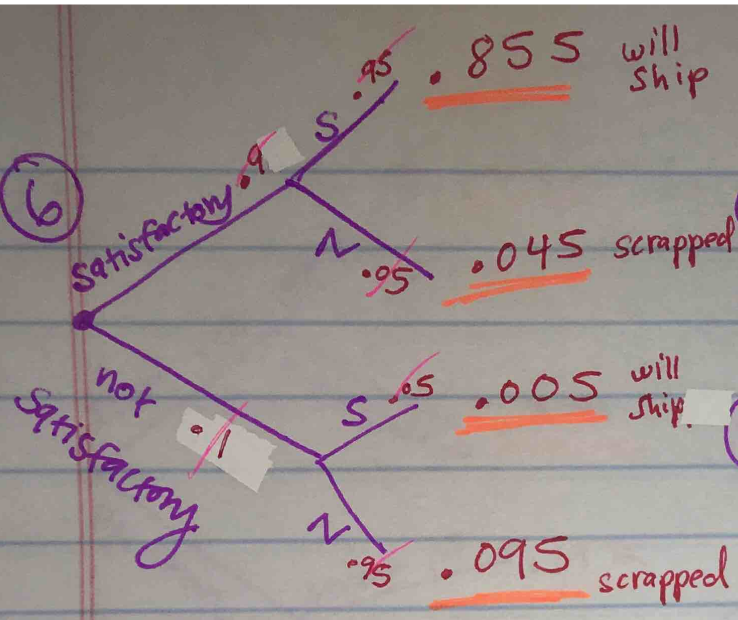
(5)



Probability play will go left if guard is balanced?

$P(\text{Left} \mid \text{Balanced})$

$\dfrac{.27}{.27+.14} = \dfrac{.27}{.41} = \boxed{.6586}$



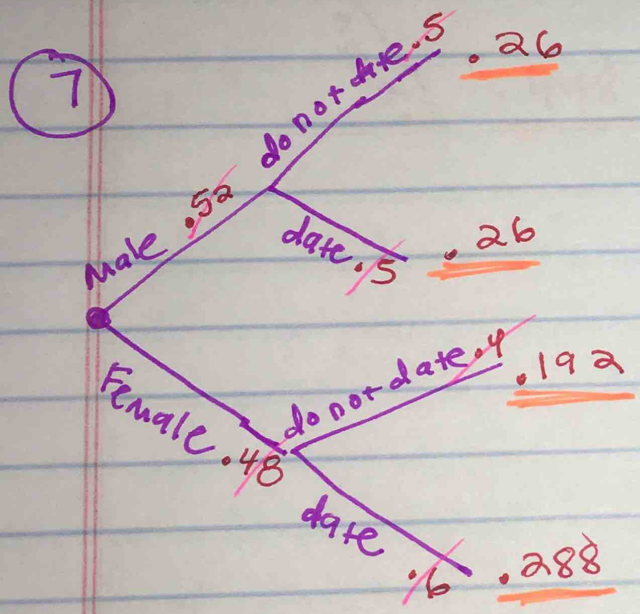
ⓐ Items classified as "good"

$.855 + .005 = \boxed{.86}$

ⓑ Items shipped classified as go[od]

P(satisfactory | ships)

$$\frac{.855}{.855+.005} = \frac{.855}{.86} = \boxed{.994}$$



ⓐ P(does not date) $= .26 + .192 = \boxed{.452}$

ⓑ P(female and does not date)

$\boxed{.192}$

ⓒ P(male | date)

$$\frac{.26}{.288+.26} = \frac{.26}{.548} = \boxed{.474}$$

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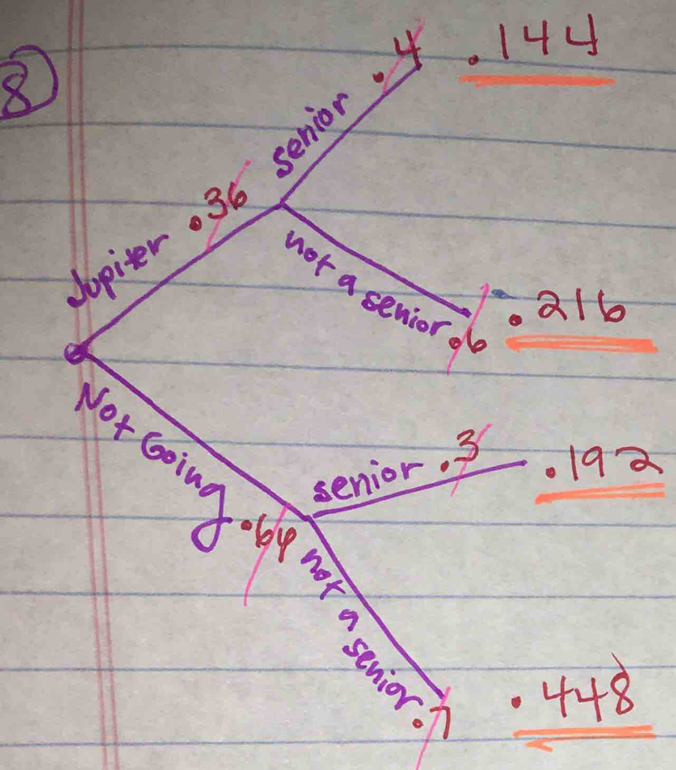

ⓐ P(wants to go) $.144 + .216$

$\boxed{.36}$

ⓑ P(senior and wants to go)

$\boxed{.144}$

ⓒ P(senior)

$.144 + .192 = \boxed{.336}$

ⓓ P(Not Going | senior)

$$\frac{.192}{.144 + .192} = \frac{.192}{.336} = \boxed{.571}$$