Econ 384 - Assign # 2

L. Priemaza W 2013

(1a) $P(45k) = 0.7$
$P(40k) = 0.2$
$P(30k) = 0.1$

$E(I) = \sum I F(I)$
$= \$45k(0.7) + \$40k(0.2) + \$30k(0.1)$
$= \$31.5k + \$8k + \$3k$

$E(I) = \$42.5k$

$E(U) = \sum U E(U)$
$= \ln(45{,}000^2)0.7 + \ln(40{,}000^2)0.2 + \ln(30{,}000^2)0.1$
$= 15 + 4.24 + 2.06$
$= 21.3$

(b) $AFI = \sum \text{loss} \cdot f(\text{loss})$
$= 15k(0.1) + 5k(0.2)$
$= \$2.5k$

Loading Ratio = Premium / AFI
$= 3k / 2.5k$
$= 1.2$

(c) $\frac{\partial U}{\partial I} = \frac{2I}{I^2} = \frac{2}{I}$

$\frac{\partial^2 U}{\partial I^2} = \frac{-2}{I^2} < 0$, Risk Averse.

(d) $U = \ln(I^2)$
$21.3 = \ln(I_s^2)$
$e^{21.3} = I_s^2$
$\sqrt{e^{21.3}} = I_s$
$\$42{,}193 = I_s$

Risk Premium $= E(I) - I_s$
$= \$42{,}500 - \$42{,}193$
$= \$307$

Econ 384-H2
L. Priemaza W13

(2a) $Q_S^H = Q_D^H$

$P_H = 600 - P_H + 2P_A$

$\boxed{P_H = 300 + P_A}$

$Q_S^A = Q_D^A$

$100 + P_A = 1{,}000 - 2P_A + P_H$

$\boxed{P_A = 300 + P_H/3}$

$P_A = 300 + \frac{300 + P_A}{3}$

$\frac{2}{3}P_A = 400$

$\boxed{P_A = \$600}$

$P_H = 300 + P_A$

$= 300 + 600$

$\boxed{P_H = 900}$

$Q^A = 100 + P_A = 100 + 600$

$\boxed{Q^A = 700}$

$Q^H = P_H$

$\boxed{Q^H = 900}$

(b) $Q_S^H = Q_D^H$

$P_H - 24 = 600 - P_H + 2P_A$

$\boxed{P_H = 312 + P_A}$

$Q_S^A = Q_D^A$

$100 + P_A + 300 = 1{,}000 - 2P_A + P_H$

$3P_A = 600 + P_H$

$\boxed{P_A = 200 + P_H/3}$

$P_A = 200 + P_H/3$

$= 200 + (312 + P_A)/3$

$\frac{2}{3}P_A = 304$

$\boxed{P_A = \$456}$

$P_H = 312 + P_A$

$= 312 + 456$

$\boxed{P_H = \$768}$

$Q^A = 300 + P_A$

$\boxed{Q^A = 756}$

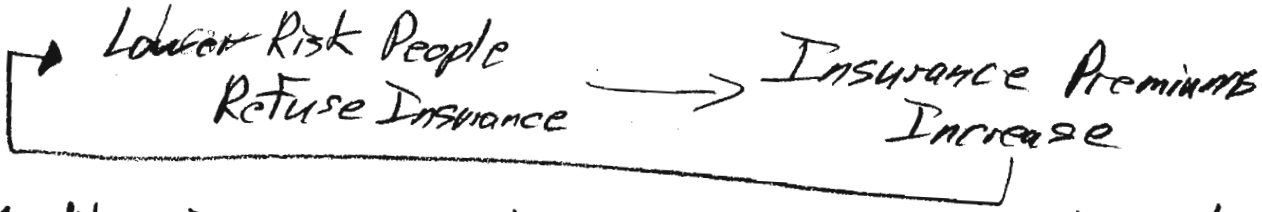
$Q^H = P_H - 24$

$\boxed{Q^H = 744}$

Appartments: Price ↓, Quantity ↑

Houses: Price ↓, Quantity ↓

(3a) Adverse Selection:



Manditory Insurance – Low risk people are forced to by insurance at going rates.

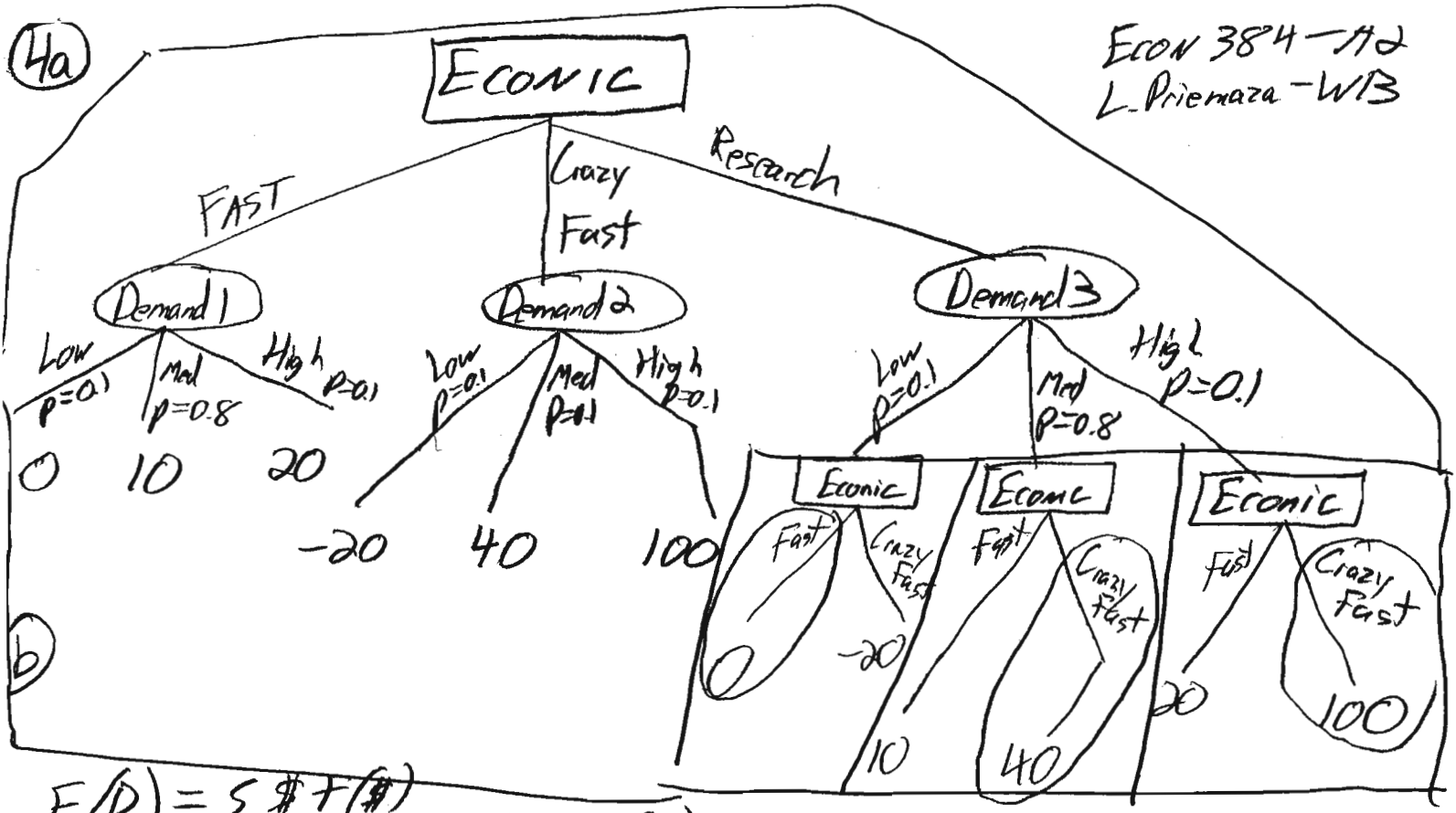
(b) Moral Hazard – People who have insurance:

① Have increased risk through risky behavior
② Claim insurance more than they need to

Deductibles:

① Make people more careful / lower risk to save money
② Decrease useless claims since they now have a cost to consumer

4a



b

$E(D_1) = \Sigma \$ * P(\$)$

$= 0(0.1) + 10(0.8) + 20(0.1)$

$= \$10$

$E(D_2) = \Sigma \$ * P(\$)$

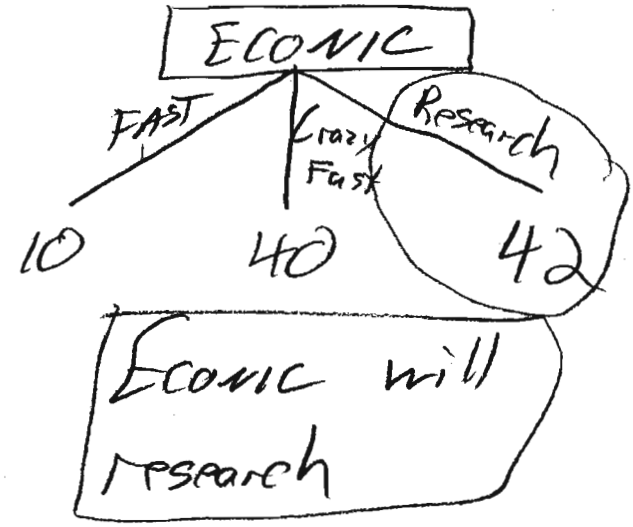
$= -20(0.1) + 40(0.8) + 100(0.1)$

$= \$40$

$E(D_3) = \Sigma \$ * P(\$)$

$= 0(0.1) + 40(0.8) + 100(0.1)$

$= \$42$



c) Max research cost = $\$42k - \$40k$

$= \$2k$

(5) $MRS_{C,F}^{B} = MRS_{C,F}^{J}$

$$\frac{MU_C^B}{MU_F^B} = \frac{MU_C^J}{MU_F^J}$$

$$\frac{1/2\sqrt{F_B}}{1/2\sqrt{F_B}} = \frac{\sqrt{F_J}/\sqrt{C_J}}{\sqrt{C_J}/\sqrt{F_J}}$$

$$4\sqrt{F_B} = \frac{F_J}{C_J}$$

$$4\sqrt{9} = \frac{9}{C_J}$$

$$12C_J = 9$$

$$C_J = 9/12$$

$$C_J = 0.75$$ — Jerry's Chocolate Bars

$$C_F = 2 - 0.75$$

$$C_F = 0.75$$ — Ben's Chocolate Bars