① $\max V_E = (1-.1)\sqrt{10000-rC} + .1\sqrt{10000-7500-rC+C}$

$= .9\sqrt{10k-rC} + .1\sqrt{2500+(1-r)C}$

$0 = (.9)(-r)(10k-rC)^{\frac{-1}{2}}\left(\frac{1}{2}\right) + .1(2500+(1-r)C)^{-1/2}(1-r)\left(\frac{1}{2}\right)$

$C(r) = \ldots$

② a) $C = (.25)(7500)$, Yes, $C = (.19)(3600)$, Yes

b) $V_E = (.75)(15000) + (.25)(7500)$

$CE = (15000 - 2343.75) = 12656.25$

$RP = V_E - CE = 468.75$

c) $V_E = (.81)(15k) + .19(11400) = 14316$

$CE = 1500 - 7415.5 = 14254.5$

$RP = V_E - CE = 61.5$

d) $I_E = \left(\frac{1}{2}\right)\left((-7500)(.25) + P\right) + \frac{1}{2}\left((-3600)(.19) + P\right)$

$= P - 1279.5$

Input p for women

e) Men

$P = 2343.75$

③ a) $\Pi = 4600 - 1000$; $\Pi = 1900 - 1200$; $\Pi_{avg} = 2250$

b) $\frac{1}{2}(\ln 3600 + \ln 900) = V_E = 7.5$

$CE = e^{7.5} = 1808.04$; $RP = 2250 - 1808.04 = 441.96$

c) ——

d) Her.

e) $\frac{1}{2}(.2(1900+4600)+350\times 2) = 1000$; $\Pi_{avg} = 2250$ b/c...

f) $V_E = \frac{1}{2}\ln(4600 - 350 + .2(4600)) + \frac{1}{2}\ln(1910 - (350 + .2(1900))) = 7.59$

g) No. More risk.

h) $\Pi = \frac{1}{2}(4600 - W_H) + \frac{1}{2}(1900 - W_L)$

i) $e^{7.5} = 1808$ $4600 - 1808 = 2992$ $1900 - 1808 = 92$

j) 154/2

(4) a) $\frac{1}{2}(202500 + 112500) = 191250 = W_E$; $U_E = 435$

b) $435^2 = 189225$

c) $RP = 191250 - 189225 = 2025$

d) 2025

e) —

f) Fire: $90000 + C - rC$
No fire: $202500 - rC$

g) $U_E = .9\sqrt{\text{No fire}} + .1\sqrt{\text{fire}}$
$dU/dC = 0 \Rightarrow$ IN EMAIL

h) $.9(202500 - r) + .1(90000 + r) = 191250$ $r = .1$

i) $C(.1) = 112500$

j) Plug into FOC. No.

K) Yes. Plug.

(5) a) $.2(C - C_r) - .8C_r$
$= 0$, $r = .2$

b) $.5(\ln(120k + 30k) - 75k, .5(\ln 120k + \ln 30k) = 11$

c) $e^{11} = 59874 = CE$, $RP = 75k - CE$

d) RP

e) —

f) Yes.

g) $E_U = .9\ln(120K - .2C) + .1\ln(30K + C - .2C)$

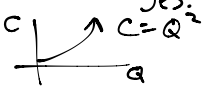
h) $dU/dC = 0 = -.18/(120000 - .2C) + .08/(30K + .8C)$

i) Plug in 90k for C

j) $C(.2) = 26250$

K) Yes to both. Fair for Helios, risk averse. Luna makes $, reduces risk.

l) 75% L, $P_L = .1$; 25% H, $P_H = 50\%$
$.75((.9)(.2C) + (.1)(.2C) - C)) + .25((.5)(.2C) + .5((.2C) - C)) = 0$
Yes.

(6) a) 

$TC = VC + 64$

b) $MC = 2Q$, $\frac{Q^2 + 64}{Q} = AC$ Check solns for AC curve

$\frac{dAC}{dQ} = 1 - \frac{64}{Q^2}$ $Q = 8$

c) $R = 20Q$ $MR = 20$

d) $MC = MR \Rightarrow 2Q = 20$ $Q = 10$

(7)

1. Increases MC. MC = MR, so increase MC intersects MR at smaller Q.
2. No difference.
3. No. No profit at MC = MR.
4. Yes. Slope of MC increases so Q decreases.
5. No change in MC or MR. No.
6. Yes. MC decreased.
7. Yes. Reduces MC so Q increases.