Problem Set 6

a) Float Payment

PV = 400,000
n = 360
r = 2.625%
PMT = $1606.6021

Float Balance after 5yrs

n = 300
PMT = $1606.6021
r = 2.625%
PV = $353,147.5691

Float Cost

PV = 400,000 − 5561 = 394,439
n = 60
PMT = −$1606.6021
FV = −353,147.5691
r = 2.9417%

Fixed Payment

PV = 400,000
n = 360
r = 4%
PMT = $1909.6612

Fixed Balance after 5years

n = 300
r = 4%
PMT = −$1909.6612
PV = $361,790.0525

Fixed Cost

PV = 400,000 − 4314 = 395,686
n = 60
PMT = −$1909.6612
FV = −361,790.0525
r = 4.2508

Floating better for 5years

b) 10 years

Floating

PMT = $1606.6021

1-5 years $r = 2.625\%$

6^{th} year $r = 4.625\%$

7^{th} year $r = 6.625\%$

$8^{th} \to 10$ $r = 7.625\%$

year 6

PV = $353,197.5691 (from part a)

$r = 4.625\%$

$n = 300$

PMT = $1988.0487

year 7

Balance

$r = 4.625\%$

$n = 288$

PMT = $1988.0487

PV = 345,462.5033

Payment

PV = 345,462.5033

$r = 6.625\%$

$n = 288$

PMT = $2398.5001

year 8-10

Balance

$r = 6.625\%$

$n = 276$

PMT = $2398.5001

PV = $339,385.0593

Payment

PV = 339,385.0593

$r = 7.625\%$

$n = 276$

PMT = $2611.0601

Balance After 10 years

n = ~~360~~ 240

r = 7.625%

PMT = $2611.0601

PV = $321,063.4062

Floating Cost, using CF menu

CF_0 = 394,439

CF_1 = −1606.6071

F = 60

CF_2 = −1988.0487

F = 12

CF_3 = −2398.5001

F = 12

CF_4 = −$2611.0601

F = 35

CF_5 = −321,063.4062 −2611.0601

IRR = 4.5258 %

Fixed Balance after 10 years

n = 240

r = 4%

PMT = $1909.0612

PV = $315,036.8267

cost

PV = 395,686

n = 120

PMT = −1909.0612

FV = −315,036.8267

r = 4.1409 %

closer, but fixed, better

c) Floating
|| from above
$CF_4 = -\$2611.0601$

$F = 276$

$CF_5 = \$0$

$IRR = 5.61392\%$

<u>Fixed</u>

$PV = 395,686$
$n = 360$
$PMT = -\$1909.0612$
$r = 4.08799\%$

Fixed is better