Econ Quiz 3

1 a)

$$\text{Capt cost} = \left[(\text{Price} - \text{salv}) \left(\frac{i(1+i)^n}{(1+i)^n - 1} \right) + \text{salv}(i) \right]$$

Cost = 15,000
Salv = 5000

$$\left[(15{,}000 - 5000) \left(\frac{0.1(1+0.1)^3}{(1+0.1)^3 - 1} \right) + 5000\,(0.1) \right.$$

$$= 4521.148$$

2)

$$PW = 15{,}000 + 15K(P/F, 10\%, 3) + 15K(P/F, 10\%, 6)$$

$$+15K(P/F, 10\%, 9) + 3K(P/A, 10\%, 12) - 5K(P/F, 10\%, 3)$$
$$-5K(P/F, 10\%, 6) - 5K(P/F, 10\%, 9) - 5K(P/F, 10\%, 12)$$

$$= 15K + 15K(0.7513) + 15K(0.5645) + 15K(0.4241)$$
$$+ 3K(6.8137) - 5K(0.7513) - 5K(0.5645) - 5K(0.424)$$
$$- 5K(0.3186)$$

$$PW = \$2680.8$$

$$AE = PW(A/P, 10\%, 12) = \$2680.8(1468)$$

$$= 7733.5414$$

[3]

Ran out of time would be whichever had lower cost

[4] Ran out of time

$$AEV = \left[\text{Savings} \left(\frac{1}{(1+i)^n} \right) \times \left(\frac{i(1+i)^n}{(1+i)^n - 1} \right) \right] - \text{capital cost}$$

6 IRR ≈ 10%

IRR {-4000, {0, 3500, 1500}} = 10.23

SO IRR = 9% < IRR < 11%

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IRR {-4000, {0, 3500, 1500}} = 10.23%

10 $PW = \sum \frac{FV}{(1+i)^n}$

$$-2000 + \frac{1000}{(1+.1)^1} + \frac{1200}{(1+.1)^2} + \frac{X}{(1+.1)^3} + \frac{X}{(1+.1)^4}$$

$$\Rightarrow -99.173554 + \frac{X}{(1.1)^3}\left(1 + \frac{1}{(1.1)}\right)$$

$$(1.1)^3\left(\frac{99.174 + EW}{\left(1 + \frac{1}{(1.1)}\right)}\right) = X$$

did not finish, but that is how to find X