Problem Set 3.5

a) 1. $PV = 400,000$

$n = 360$

$r = 4\%$

$PMT = \boxed{-\$1909.6612}$

2. $400,000 \times \frac{.045}{12} = \$1500$

3. $\$1200$

b) $PV = 400,000$

$n = 360 - 60 = 300$

$r = 4.5$

$PMT = \boxed{\$2223.3299}$

c) $PV = 400,000$

$r = 5\%$

$PMT = -1200$

$FV = -480,000$

$\boxed{n = 129.6285 \rightarrow 130}$

d) $PV = 480,000$

$r = 5$

$n = 360 - 130 = 230$

$PMT = -\$3248.3138$

e) The fully amortizing loan works for someone who wants little risk & wants to make steady progress on paying off the loan.

The zero interest would work well for someone who thinks they will move in about 5 years, and the property will not decline in value. It would also work for someone who expects an increase in income over the next 5 years, preferably a large one. Perhaps a young family where one spouse has temporarily quit work to stay with a young child, but plans to return to work in 5 years or less.

The negative amortization would work for someone with uneven income, who plans to pay more than $1200 most months, but needs the 1200 in slow months.

It also may work for someone who knows they will sell the property before 130 months. This same person would need a large down payment too, because the lender will not want 480,000 to exceed the property value.

A very dangerous loan