تمرین چهارم– تامین مالی املاک و مستغلات
محاسبه ریسک

1. **If Tony wants to buy a house asking $1,000,000 and is looking for an 80% loan-to-value, how much principal will he have paid on the loan after 24 months if it is a 30-year (full amortization) FRM with an interest rate of 5.675%?**

2. **You wish to borrow $200,000 for 20 years at 7% interest rate and amortize the loan by making _xed monthly payments. You also agree to make a balloon payment of $30,000 at the end of your last month (240th month). What will be your monthly payment?**

3. **A large number of investors want to invest together in a real estate project which is going to require large investments for many years to come, as they expect to take advantage of numerous growth opportunities. They decide to organize as a private corporation rather than as a private REIT. Name one reason why this decision makes sense.**

4. **A property your are thinking of purchasing has a net operating income of $400,000. You have obtained the following two recent sales data:**

	NOI	Selling price
Property 1	$424,200	$4,200,000
Property 2	$387,200	$3,400,000

   What is the estimated value of your target property using the capitalization rate approach (assign equal weights to the two sales)? Show your work.

5. **An investors can split his wealth across 3 assets, but cannot shortsell any of those assets. All three assets have the same expected return, namely 0.1, and the same variance, namely 0.05. The return on asset 1 has zero correlation with the returns on both asset 2 and asset 3. The returns on asset 2 and asset 3 are pefectly correlated. What is the lowest variance the investor can acheive? Show your work.**

6. **Consider the following probability space and random variables.**

S	S1	S2	S3
P	0.3	0.2	0.5
r1	0.5	0.0	0.3

   Assume that CAPM holds exactly. Assume further that the market portfolio has variance 0:01, and expected return 0:2. The risk-free rate is 0:1. What must be the covariance of r₁ with the market portfolio? Show your work