Problem 1. Chris buys stock of Chevron for $50. After a few weeks, he collects dividends of $2 and sells it for $52. Find Chris's rate of return from this investment.

Answer 1. The return is $(52 - 50) + 2 = 4$. Therefore the rate of return is $4/50 = 8\%$

Problem 2.   The relationship between interest rates and bond prices is

(a) positive

(b) negative

(c) neutral

(d) getting serious but bond prices are afraid of commitment

(e) none of the above

Answer 2: b.   Suppose you buy a bond that pays $100 one year from now for $80. Your confused friend buys the same bond for $90. Then the respective interest rates are

$$\frac{100 - 80}{80} = 25\%,$$
$$\frac{100 - 90}{90} = 11.11\%.$$

Intuition: if you pay *less* to receive $100 a year from now, then you're getting a better deal.

Problem 3.   A financial asset that is traded in financial markets is specifically called

(a) a liquid asset

(b) a tradable asset

(c) a security

(d) a bond

(e) none of the above

Answer 3: c.   Not all financial assets can be traded in the market. e.g. your checking account. Assets that are traded are called securities and financial markets are also called securities markets.

Problem 4.   The process through which the rates of return on identical assets are equalized is called

(a) financial market transaction

(b) arbitrage

(c) securities market

(d) investment

(e) none of the above

Answer 4: b.   If a rate of return is "too high," then people will buy a lot of it, making the price goes up, and therefore its interest rate will fall to its "normal" level. If the rate of return is "too low," then people will sell a lot of it until the price goes down and therefore the interest rate will rise to its "normal" level.

Post-Midterm Edit.   If the bonds have identical face values, then we would indeed expect the price of the bonds to be the same. But if the bonds are identical except for with different face values, then we would expect arbitrage to give the same interest rate, but a different price. For example, if two bonds are identical except one has a face value of 110 and the other a face value of 1100, then arbitrage would ensure that

$$100(1 + i) = 110,$$
$$1000(1 + i) = 1100,$$

where i is the same for both bonds.

Problem 5.   Here, match some stuff.

Definitions

(a) decreases in the general price level
(b) decreases in the inflation rate
(c) increases in the general price level
(d) nominal interest rate minus expected inflation rate
(e) the interest rate charged on a loan

Terms

(i) inflation
(ii) real interest rate
(iii) deflation
(iv) ex-ante real interest rate
(v) disinflation
(vi) nominal interest rate
(vii) recession

Answer 5.

(a) Deflation is a general decrease in the price level

(b) Disinflation is a decrease in the inflation rate

(c) Inflation is an increase in the general price level

(d) The **ex-ante real interest rate** is the nominal interest rate minus the expected inflation rate. *Ex-ante* refers to the fact that we use the *expected* inflation rate because we don't know what inflation will be in the future.

(e) Nominal interest rate is the rate applied to the dollar amount of loans.

Super important formula (called the *Fisher Equation*):

$$r = R - \pi,$$

where r is the real interest rate, R is the nominal interest rate, and π is the rate of inflation. In other words, the nominal interest rate is equal to the real interest rate plus the inflation rate. Ex-ante, the Fisher equation is $r^e = R - \pi^e$.

Problem 6.

$$\begin{aligned}
\text{nominal interest rate in 2016:} &\quad 6\% \\
\text{general price level in 2016:} &\quad 100 \\
\text{general price level expected in 2017:} &\quad 104 \\
\text{actual general price level in 2017:} &\quad 107
\end{aligned}$$

Find the expected one-year rate of inflation in 2016.

Answer 6. Expected inflation is going to be

$$\frac{104 - 100}{100} \times 100 = 4\%.$$

Problem 7.

$$\begin{aligned}
\text{nominal interest rate in 2016:} \quad & 6\% \\
\text{general price level in 2016:} \quad & 100 \\
\text{general price level expected in 2017:} \quad & 104 \\
\text{actual general price level in 2017:} \quad & 107
\end{aligned}$$

Find the ex-ante real interest rate in 2016.

Answer 7.   The ex-ante real interest rate is the nominal interest rate minus the expected inflation rate. The Fisher equation $r^e = R - \pi^e$ gives

$$6\% - 4\% = 2\%.$$

Problem 8.

$$\begin{aligned}
\text{nominal interest rate in 2016:} \quad & 6\% \\
\text{general price level in 2016:} \quad & 100 \\
\text{general price level expected in 2017:} \quad & 104 \\
\text{actual general price level in 2017:} \quad & 107
\end{aligned}$$

Find the ex-post real interest rate in 2016.

Answer 8.   The ex-post real interest rate is the nominal interest rate minus actual the inflation rate. The Fisher equation $r = R - \pi$ gives

$$6\% - 7\% = -1\%.$$

Problem 9. Leopnard and Brad both expect 4% inflation over the next year. Brad borrows some money from Leopnard at the interest rate of 7%. Next year, the inflation rate turns out to be only 2%. In this story

(a) Leopnard will be better off than expected

(b) Leopnard will be worse off than expected

(c) Brad will be better off than expected

(d) Both will be worse off than expected

(e) "Leopnard" is a really funny name.

Answer 9: a and e, but mostly a.   The ex-ante real interest rate Brad and Leopnard agreed to was $7\% - 4\% = 3\%$. However, actual inflation turned out to be only 2%, so the ex-post real interest rate was $7\% - 2\% = 5\%$. Leopnard therefore receives 3% more real return than expected; Brad pays 3% more in interest payments than expected. The moral of the story is

- below-expected inflation benefits lenders and hurts borrowers,

- above-expected inflation benefits borrowers and hurts lenders.

Problem 10.　Davis inherits some cash from his aunt and deposits it in his checking account. He realized that inflation is going to erode the purchasing power of those deposits. His financial adviser tells him to buy gold coins and put them in a safe deposit box. The fee Davis pays the adviser, plus the cost of the safe deposit box, is

(a) menu costs

(b) shoe-leather costs

(c) hedging costs

(d) inflation costs

(e) none of the above

Answer 10: b.   The phrase **shoe-leather costs** refers broadly to the costs people incur to protect the purchasing power of their money holdings.

Problem 11.   Apple Computers raises the pries of iPhones and iPads just to keep up with the general inflation. As a result, it has to modify its computer programs, issue new online catalogues, and inform the retail stores about the new prices. The costs of all these activities incurred by Apple are called

(a) menu costs

(b) shoe-leather costs

(c) inflation costs

(d) price-change costs

(e) none of the above

Answer 11: a. **Menu costs** include such costs as printing new catalogues by business firms and sending them to their branches, updating their websites with the new pricing information, informing their wholesale buyers, and changing their computer programs.