Macroeconomics
Unit 4 Practice Sheet

Part 1: Nominal v. Real Interest Rates- *Answer the questions. Show your work.*

1. Assume the nominal interest rate is 7% and inflation is 3%. What is the real interest rate? 4%
   = 7% - 3%
2. Assume the real interest rate is -2% and the inflation rate is 5%. What is the nominal interest rate? 3%
   = -2% + 5%
3. Assume the real interest rate is 4% and the nominal interest rate is 7%. What is the expected rate of inflation? 3%
   = 4% - 7%

Part 2 - Bank Balance Sheets- *Use the balance sheet below to answer the questions.*

Assets		Liabilities	
Required reserves	$2,000	Demand deposits	$20,000
Excess reserves	$0		
Customer loans	$7,000		
Government securities (bonds)	?		

4. Calculate the total amount of government securities this bank owns. The bank owns $11,000 of government securities since both assets and liabilities need to equal $20,000.
5. Calculate the required reserve ratio. Explain how you got your answer. Reserve Requirement is .1 or 10%. The bank has $2000 of required reserves which is 10% of the $20,000 of deposits.
6. Suppose that an individual deposits $10,000 of cash into her checking account. What is the immediate effect of the cash deposit on the M1 measure of the money supply? Explain. No change. Cash and money in checking accounts are both part of M1 money supply.
7. What is the dollar value of the bank's required reserves after the $10,000 cash deposit? Explain. $3,000. This is the original $2,000 plus the additional $1000 that must be placed in required reserves.
8. What is the dollar value of the bank's excess reserves immediately after the $10,000 cash deposit? Explain. $9,000. The bank can loan out 90% of the $10,000 deposit.

9. Calculate the maximum increase in the money supply as a result of the $10,000 deposit. Show your work. $90,000 increase = Initial loan ($9,000) x money multiplier (10). Notice that the answer is not $100,000. Only the amount that is initially lent out gets multiplied.
10. What are two different behaviors that could prevent the money supply from increasing by the maximum amount? Banks might not lend out all their excess reserves, people could hold cash and not deposit money in banks.
11. Assume instead that the government buys $10,000 of securities. What is the immediate effect on the M1 measure of the money supply? Explain. No change. The purchase initially increases the monetary base, not the money supply. The money supply increases only after the money is lent out.
12. Calculate the maximum increase in the money supply when the government buys $10,000 of securities. Show your work. $100,000 increase = Initial loan ($10,000) x money multiplier (10)

13. Will the demand deposits for this bank initially increase, decrease, or stay the same when the government buys $10,000 of securities? Explain. Same. Demand deposits don't change since people didn't deposit more money.
14. Assume customers withdraw more money from this bank then it has in reserves. What two options does the bank have to avoid becoming insolvent? Borrow from the Fed or borrow from another bank.

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Part 3 - Monetary Policy- *Fill out the chart showing how each influences the economy.*

15. How does a decrease in the interest rate affect investment? Explain. Investment increases since loans are easier to get and cheaper.

16. What is the difference between the discount rate and the federal funds rate? Discount rate is what the Fed charges banks. The federal funds rate is what banks charge each other.

	Recessionary Gap	Inflationary Gap	AS or AD
Long-run Self-Adjustment	Costs↓ Wages↓ - AS↑	Costs↑ Wages↑ - AS↓	AS
Fiscal Policy	Gov Spend↑, Taxes↓ - AD↑	Gov Spend↓, Taxes↑ - AD↓	AD
Monetary Policy	RR↓, DR↓, Buy bonds - AD↑	RR↑, DR↑, Sell bonds - AD↓	AD

Part 4- Loanable Funds- *Fill out the chart.*	Demand or Supply ↑ or ↓	Real Interest Rate
17. To decrease unemployment, the government deficit spends	D↑	Real rate↑
18. Political unrest causes foreigners to take money out of the economy.	S↓	Real rate↑
19. Businesses expect lower sales and worse economic conditions.	D↓	Real rate↓
20. In anticipation of longer life expectancy, people begin to save more	S↑	Real rate↓

Part 5- FRQ Practice- Complete the following question from the 2017 AP exam (Question 2).

2. Assume that an economy is in long-run equilibrium. Assume that consumers wish to hold less money because they use credit cards more frequently to purchase goods and services than cash.

   (a) Draw a correctly labeled graph of the money market and show the effect of the reduced holdings of money on the equilibrium nominal interest rate in the short run.

   (b) Based on the change in the interest rate in part (a), what will happen to each of the following in the short run?

      (i) Prices of previously issued bonds

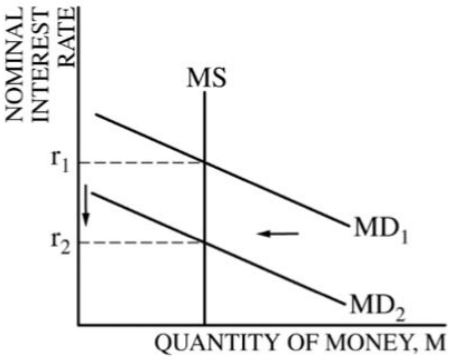
      (ii) The price level and real income. Explain.

   (c) With a constant money supply, based on your answer to part b(ii), will the velocity of money increase, decrease, or remain the same, or is the change indeterminate?

   (d) If the central bank wishes to reverse the change in the interest rate identified in part (a), what open market operation would it use?

Question 2

6 points (2 + 2 +1 + 1)



(a) 2 points:

- One point is earned for drawing a correctly labeled graph of the money market.
- One point is earned for showing a leftward shift in the money demand curve, resulting in a lower nominal interest rate.

(b) 2 points:

- One point is earned for stating that the price of previously issued bonds will increase.
- One point is earned for stating that both the price level and real income will increase and for explaining that the lower interest rate will increase consumption, investment, and/or net exports (interest-sensitive spending), which increases aggregate demand.

(c) 1 point:

- One point is earned for stating that the velocity of money will increase.

(d) 1 point:

- One point is earned for stating that the central bank would sell bonds.