

Questions 1- 3 refer to the following:

The amount of currency is \$3,000 (in the hands of the non-bank public)

The amount of deposits is \$20,000

The required reserve ratio is 0.10

Excess reserves are \$1000.

1. (9 pts) What is the value of reserves?

$$RR = D * RRR = \$20,000 * 0.10 = \$2,000$$

$$\text{Total Reserves} = \text{Required Reserves} + \text{Excess Reserves} = \$2,000 + \$1,000 = \$3,000$$

2. (9 pts) What is the value of the money supply?

$$M = C + D = \$3,000 + \$20,000 = \$23,000$$

3. (9 pts) What is the value of the monetary base?

$$B = C + R = \$3,000 + \$3,000 = \$6,000 \quad (\text{partial credit if you missed \#1 and answerd } \$5000)$$

4. (9 pts) Based on your answers above, what is the value of the money multiplier?

$$M = B * \mu \quad \mu = M / B = \$23,000 / \$6000 = 3.83 \quad (\text{more partial credit for } \$23,000 / \$5,000)$$

For each of the changes described in questions 5 - 7, indicate the effect, if any, on each of:

- (a) the money multiplier
- (b) the monetary base
- (c) the money supply
- (d) aggregate demand (GDP)

5. (16 pts) A decrease in the currency – deposit ratio

$$\uparrow (C/D) \Rightarrow \downarrow \mu \Rightarrow \downarrow M \Rightarrow \downarrow AD \quad \text{no change in B}$$

6. (16 pts) An increase in the nominal interest rate

$$\uparrow (\text{Nominal interest rate}) \Rightarrow \downarrow k \Rightarrow \uparrow AD \quad \text{no change in B, } \mu, M$$

Note: The nominal interest rate is the opportunity cost of holding money

7. (16 pts) An increase in the reserve requirement ratio

$$\uparrow RRR = \uparrow (R/D) \Rightarrow \downarrow \mu \Rightarrow \downarrow M \Rightarrow \downarrow AD \quad \text{no change in B}$$

8. (8 pts) According to your answer to #7, what would happen to the price level and real GDP in the economy in the short run?

$$\downarrow P, \downarrow y$$

9. (8 pts) According to your answer to #7, what would happen to the price level and real GDP in the economy in the long run?

$$\downarrow P, \text{ no change in } y$$