AP Macroeconomics Formulas and Definitions:

Key Formulas

1. Rule of 70: Used to determine how many years it takes for a value to double, given a particular annual growth rate. For example, if you put $20,000 in the bank and it earns yearly interest of 7%, then it will take 10 years (70/7) for your income to double. **70/x = # years to double where x equals growth rate.**
2. **Y = C + I + G + NX** – the spending approach to calculating GDP.
3. **S = I in a closed economy (no trade) and S = I + NX in an open economy**
4. **Calculating Nominal GDP:** Multiple the number of each good produced times the price of each good: **Photdog*Qhotdog + Phamburger*Qhamburger**.
5. **Calculating Real GDP: this proceeds just as calculating nominal GDP, but instead of current prices you use base prices: Photdog(base year)*Qhotdog (current year) + Phamburger (base year)*Qhamburger (current year). Side implications: In the base year Nominal GDP = Real GDP, with inflation Nominal GDP > Real GDP.**
6. **GDP deflator:** A measure of the cost of living (substitute for the CPI). **GDP deflator = (Nominal GDP/Real GDP)*100**. Remember that this is an index. **Side implication: In the base year the GDP Deflator = 100.**
7. **Constructing the CPI: step 1: compute the cost of a market basket in each year (prices times quantities), step 2: choose a base year. Step 3: Calculate the CPI for the current year by: (Cost current year)/(cost in base year)*100. Side implication: in the base year the CPI = 100. With inflation, CPI increases.**
8. **The inflation rate via the CPI: (CPI current year – CPI previous year)/CPI previous year all times 100.** Note that this is just a percentage change. The inflation rate is the percentage change in the CPI from one period to the next. You could also calculate the percentage change in the GDP (implicit) price deflator from year to year to derive at an alternative measure of inflation.
9. **Correcting for inflation:** Let's adjust for inflation so we can, in a more meaningful way, compare the dollar values of different points in time. **Convert a figure in 1990 to its current value: current value = value in 1990 * (CPI in 2000/CPI in 1995). For example, Babe Ruth earned $80,000 in 1931. Translating to current dollars means: current value = 80,000 * (107.6/8.7) = $989,000. So $80,000 back then is equivalent to $989,000 today…THIS ONE IS CRUCIAL!!!!!!**
10. **Real interest rate = nominal interest rate – inflation rate.**
11. **Production function: Y = AF(L,K,H,N)**
12. **Productivity: Y/L = AF(1,K/L, H/L, N/L)**
13. **Unemployment Rate = (Number of Unemployed/Labor Force)*100.** Key, first

get the labor force – all the folks who are actively seeking employment!

14. **Labor force participation rate: (Labor force/adult population)*100.**
15. **Money Multiplier = 1/R where R = reserve ratio.** Application: an initial injection of $1000 of new money into an economy with a reserve ratio of 10% (.1) will generate $1000*(10) = $10,000 in total money.
16. **Quantity equation of money: MV = PY – a moneterist's view of what explains changes in P (they are correct, in the long run changes in P is driven by changes in M because V is stable and Y is determined outside the model).** If given three of the four variables, you should be able to use this equation to find the unknown variable.
17. **MPC + MPS = 1.** Know these definitions and this property!
18. **Expenditures Multiplier = 1/(1 – MPC) OR 1/MPS. It tells you how much total spending an initial injection of spending in the economy will generate.** For example, if the MPC = .8 and the government spends $100 million, then the total increase in spending in the economy = $100 * 5 = 500 million.

Key Definitions:

1. **Aggregate demand:** A schedule or curve which shows the total quantity of goods and services demanded (purchased) at different price levels.
2. **Aggregate supply:** the total amount spent for final goods and services in the economy.
3. **Absolute advantage:** the comparison among producers of a good according to their productivity (NOT their opportunity costs).
4. **Allocative efficiency:** the apportionment of resources among firms and industries to obtain the production of the products most wanted by society (consumers); the output of each product at which its marginal cost and price (marginal benefit) are equal.
5. **Automatic stabilizers:** changes in fiscal policy that stimulate AD when the economy goes into a rece4ssion without policymakers having to take any deliberate action.
6. **Business cycle:** recurrent ups and downs over a period of years in the level of economic activity.
7. **Capital:** human-made resources (machinery and equipment) used to produce goods and services; goods which do not directly satisfy human wants.
8. **Catch up effect:** the property whereby countries that start off poor tend to grow more rapidly than countries that start off rich.
9. **Ceteris paribus:** "other things equal" used as a reminder that all variables other than the ones being studied are assumed to be constant.
10. **Circular flow diagram:** a visual model of the economy that shows how dollars flow through markets among households and firms.
11. **Classical dichotomy:** the theoretical separation of nominal and real variables.
12. **Comparative advantage:** a lower relative cost than another producer.
13. **CPI:** an index which measures the prices of a fixed market basked of consumer goods

bought by a typical consumer.

14. **Consumption schedule (curve):** a schedule showing the amounts households plan to spend for consumer goods at different levels of income.
15. **Contractionary fiscal policy:** a decrease in AD brought about by a decrease in government spending for goods and services, an increase in net taxes, or some combination of the two.
16. **Contractionary monetary policy:** a decrease in AD brought about by a decrease in the money supply, which in turn results from the Fed selling government securities, increasing the discount rate, or increasing the reserve requirement.
17. **Cost push inflation:** inflation resulting from a decrease in AS (from higher wage rates and raw material prices) and accompanied by a decrease in real output and employment.
18. **Crowding out effect:** the rise in interest rates and the resulting decrease in investment spending in the economy caused by increased borrowing in the money market by the government.
19. **Cyclical unemployment:** Unemployment caused by insufficient AD.
20. **Demand deposit:** a deposit in a commerical bank against which checks may be written.
21. **Demand pull inflation:** inflation resulting from an increase in AD
22. **Depreciation of the dollar:** a decrease in the value of the dollar relative to another currency; a dollar now buys a smaller amount of the foreign currency.
23. **Discount rate:** the interest rate which the FED charge on the loans they make to commercial banks.
24. **Economic efficiency:** getting the most from our scarce resources: for a given amount of input producing the greatest amount of goods and services. Or, producing a certain amount of goods and services with the least amount of inputs.
25. **Economic resources:** land, labor, capital, and entrepreneurial ability which are used in the production of goods and services.
26. **Equality versus efficiency tradeoff:** the decrease in economic efficiency which may accompany a decrease in income inequality.
27. **Equity:** the property of distributing economic prosperity fairly among the members of society.
28. **Excess reserves:** the amount by which a bank's actual reserves exceeds its required reserves.
29. **Expenditures approach:** the method which adds all the expenditures made for final goods and services to measure the GDP (the alternative is to add up incomes – the income approach).
30. **Exports:** goods and services produced in a nation and sold to customers in other nations.
31. **Fallacy of composition:** incorrectly reasoning that what is true for the individual (or part) is therefore necessarily true for the group (or whole)
32. **Federal funds rate:** the interest rate banks charge one another on overnight loans made out of their excess reserves.

33. **Fiat money:** anything that is money because government has decreed it to be money (it has no intrinsic value)
34. **Fiscal policy:** changes in government spending and tax collections designed to achieve a full employment and noninflationary domestic output.
35. **45 degree line:** a line along which the value of the GDP (measured horizontally) is equal to the value of Aggregate expenditures (measured vertically). All points on this line are equilibrium points!
36. **Fractional reserve banking:** a banking system in which banks hold only a fraction of deposits as reserves.
37. **Frictional unemployment:** unemployment caused by workers voluntarily changing jobs and by temporary layoffs; unemployed workers "between jobs"
38. **Full employment:** when the unemployment rate is equal to the full employment unemployment rate there is only frictional and structural unemployment; cyclical unemployment equals zero. At this point we are also at potential output.
39. **GDP:** the total market value of all final goods and services produced during a given time period within the boundaries of the U.S., whether by American or foreign-supplied resources.
40. **GDP deflator:** the price index for all final goods and services used to adjust the money GDP into real GDP. (a substitute for the CPI).
41. **GNP:** the total market value of all final goods and services produced within a given time period by American residents, whether these people are located in the U.S. or abroad.
42. **Imports:** spending on goods and services produced in a foreign nation.
43. **Inflation:** a rise in the general level of prices in the economy (percentage change in either the CPI or the GDP deflator)
44. **Investment:** spending on capital equipment, inventories, and structures. NOT the purchase of financial assets (stocks and bonds).
45. **Invisible hand:** the tendency of firms and households seeking to further their self interests in competitive markets to further the best interest of society as a whole.
46. **Productivity:** total output divided by the quantity of labor employed to product the output.
47. **Law of increasing opportunity cost:** as the amount of a product produced is increased, the opportunity cost of producing an additional unit of the product increases.
48. **Liquidity:** money or things which can be quickly and easily converted into money with little or no loss of purchasing power.
49. **LRAS:** the AS curvfe associated with a time period in which input prices and output prices move freely.
50. **M1:** the narrowly defined money supply; currency and checkable deposits.
51. **M2:** a more broadly defined money supply; equal to M1 plus noncheckable savings deposits, money market deposits, mutual funds, and small time deposits.
52. **M3:** very broadly defined money supply: includes M2 plus large time deposits.
53. **Macroeconomics:** the study of economy-wide phenomona, including inflation, unemployment, and economic growth.
54. **Marginal analysis:** decision making which involves a comparison of marginal (extra)

benefits and marginal costs.

55. **Marginal propensity to consume (MPC):** fraction of any change in income spent for goods and services; equal to the change in consumption divided by the change in disposable income.
56. **Marginal propensity to save (MPS):** fraction of any change in income that is saved; equal to the change in savings divided by the change in disposable income.
57. **Menu costs:** the costs of changing prices
58. **Microeconomics:** the part of economics concerned with such individual units within the economy as Industries, firms, and households; and with individual markets, particular prices, and specific goods and services.
59. **Monetary neutrality:** the proposition that changes in the money supply do not affect real variables
60. **Moneterism:** the macroeconomic view that the main cause of changes in aggregate output and the price level are fluctuations in the money supply; advocates a monetary rule.
61. **Monetary policy:** changing the money supply to assist the economy to achieve a full employment, noninflationary level of total output.
62. **Money:** any item which is generally acceptable to sellers in exchange for goods and services.
63. **Natural rate hypothesis:** the idea that the economy is stable in the long run at the natural rate of unemployment; views the long run Philips curve as vertical at the natural rate of unemployment.
64. **Normative economics:** that part of economics pertaining to value judgements about what the economy *should* be like; concerned with economic goals and policies.
65. **Okun's law:** the generalization that any one percentage point rise in the unemployment rate above the full employment unemployment rate will increase the GDP gap by 2.5 percent of the potential GDP of the economy. So...start in long run equilibrium – as the unemployment rate increases by 1% we see GDP growth decrease by 2.5 percent.
66. **Opportunity cost:** the amount of other products which must be forgone or sacrificed to produce a unit of a product.
67. **Philips curve:** a curve showing the relationship between the unemployment rate and the inflation rate. In the short run it shows a negative (inverse) relationship. In the long run there is no relationship.
68. **Positive economics:** the analysis of facts or data to establish scientific generalizations about economic behavior (as opposed to normative economics).
69. **Potential GDP:** the real output an economy is able to produce when it fully employs its available resources.
70. **Production possibilities frontier:** a graph that shows the various combinations of output that the economy can possibly produce given the available factors of production and the available production technology.
71. **Productive efficiency:** the production of a good in the least costly way (minimum

ATC)

72. **Rational expectations theory:** the hypothesis that business firms and households expect monetary and fiscal policies to have certain effects on the economy and take, in pursuit of their own self interests, actions which make these policies ineffective.
73. **Ricardian equivalence theorm:** the idea that an increase in the public debt will have little or no effect on real output and employment because taxpayers will save more in anticipation of future higher taxes to pay the higher interest expense on the debt. Meant to show fiscal policy is ineffective: I won’t consume more when you lower my taxes because I know you are going to raise them in the future...
74. **Say’s Law:** the macroeconomic generalization that the production of goods and services (supply) creates an equal aggregate demand for these goods and services. The implication is that we can never have a recession due to a shortfall in AD (this law was shown to be false!)
75. **Shoeleather costs:** the resources wasted when inflation encourages people to reduce their money holdings and make trips to the bank more frequently.
76. **Stagflation:** inflation accompanied by stagnation in the rate of growth of output and a high unemployment rate in the economy. Caused by a decrease in AS.
77. **Structural unemployment:** unemployment caused by changes in the structure of demand for goods and in technology; workers who are unemployed because their skills are not demanded by employers, they lack sufficient skills to obtain employment, or they cannot easily move to locations where jobs are available.
78. **Terms of trade:** the rate at which units of one product can be exchanged for units of another product; the amount of one good or service given up to obtain one unit of another good or service.