Assignment 6: Employment and output

Due Friday 28 October. Please submit hardcopy at the beginning of class (11:00 a.m.), or if you prefer, under the door of Wimberly Hall 339C by 10:50 a.m.

Part A: BLS definitions

The Bureau of Labor Statistics (BLS) surveys people aged 16 or older and applies these definitions:

- *Employed*: Those who performed any work (including self-employment or on a family farm).

- *Unemployed*: Those who had no employment, were available for employment, and looked for a job in the preceding four weeks.

- *Labor force*: The sum of employed and unemployed people.

- *Unemployment rate*: The number unemployed as a percent of the labor force.

- *Labor force participation rate*: The labor force as a percent of the population.

Part B: Entering and exiting the labor force

For this section, please

- use four digits after the decimal in your answers,
- specify units, such as percent (%) or percentage points (p.p.) as applicable, and
- use the data in the following table and the BLS definitions above.

Classification	People (millions)
Employed	158.8
Unemployed	5.8
Working-age population	259.6

1. Write the formula for *the labor force participation rate* as a function of *employment, unemployment*, and *the working-age population*.

2. What was the labor force participation rate in February 2020?

3. What was the unemployment rate in February 2020?

4. Suppose that in March 2020, 1 million unemployed people quit looking for a job, and the number of employed people stayed the same as in February 2020.

   a) What would be the unemployment rate in March 2020?

   b) What was the change in the unemployment rate from February 2020 to March 2020?

   c) Why did the unemployment rate change without any change in employment?

5. *Now instead suppose* that in March 2020, the number of unemployed people remained the same as in February 2020, while 5 million people quit their jobs to be stay-at-home parents.

   a) In this case, what would be the unemployment rate in March 2020? Please specify units.

   b) What was the change in the unemployment rate from February 2020 to March 2020? Please specify units.

   c) Why did the unemployment rate change without any change in unemployment?

Part C: Production and output

For this section, please use the fictional data below. *Please specify units for each answer.*

Year	Carrots		Onions	
	Price ($/ton)	Output (tons)	Price ($/ton)	Output (tons)
2019	2	10	3	15
2020	3	8	4	11

1. What was nominal GDP in 2019?

2. What was nominal GDP in 2020?

3. What was the percent change in nominal GDP from 2019 to 2020?

4. For this question, please use 2019 as the base year.

    a) What was real GDP in 2019?

    b) What was real GDP in 2020?

    c) What was the percent change in real GDP from 2019 to 2020?

5. For this question, please use 2020 as the base year.

    a) What was real GDP in 2019?

    b) What was real GDP in 2020?

    c) What was the percent change in real GDP from 2019 to 2020?

6. Why is the percent change in nominal GDP so different than the percent change in real GDP?