Problem 1. Define a **discouraged worker** and a **marginally attached** worker.

Problem 2. For a country with the following data,

$$
\begin{aligned}
\text{Civilian Population} &: \quad 125,000, \\
\text{Employed} &: \quad 95,000, \\
\text{Unemployed} &: \quad 5,000, \\
\text{Discouraged} &: \quad 18,750, \\
\text{Marginally Attached} &: \quad 20,000, \\
\text{Part-Time} &: \quad 3,000,
\end{aligned}
$$

find the official unemployment rate.

Problem 3.   For a country with the following data,

$$
\begin{aligned}
\text{Civilian Population} : \quad & 125,000, \\
\text{Employed} : \quad & 95,000, \\
\text{Unemployed} : \quad & 5,000, \\
\text{Discouraged} : \quad & 18,750, \\
\text{Marginally Attached} : \quad & 20,000, \\
\text{Part-Time} : \quad & 3,000,
\end{aligned}
$$

find the unemployment rate that includes part-time workers.

Problem 4.   For a country with the following data,

$$
\begin{aligned}
\text{Civilian Population} &: \quad 125,000, \\
\text{Employed} &: \quad 95,000, \\
\text{Unemployed} &: \quad 5,000, \\
\text{Discouraged} &: \quad 18,750, \\
\text{Marginally Attached} &: \quad 20,000, \\
\text{Part-Time} &: \quad 3,000,
\end{aligned}
$$

find the unemployment rate that includes discouraged workers.

Problem 5.   For a country with the following data,

$$
\begin{aligned}
\text{Civilian Population} &: \quad 125,000, \\
\text{Employed} &: \quad 95,000, \\
\text{Unemployed} &: \quad 5,000, \\
\text{Discouraged} &: \quad 18,750, \\
\text{Marginally Attached} &: \quad 20,000, \\
\text{Part-Time} &: \quad 3,000,
\end{aligned}
$$

find the unemployment rate that includes marginally attached workers.

Problem 6.   For a country with the following data,

$$
\begin{aligned}
\text{Civilian Population} &: \quad 125,000, \\
\text{Employed} &: \quad 95,000, \\
\text{Unemployed} &: \quad 5,000, \\
\text{Discouraged} &: \quad 18,750, \\
\text{Marginally Attached} &: \quad 20,000, \\
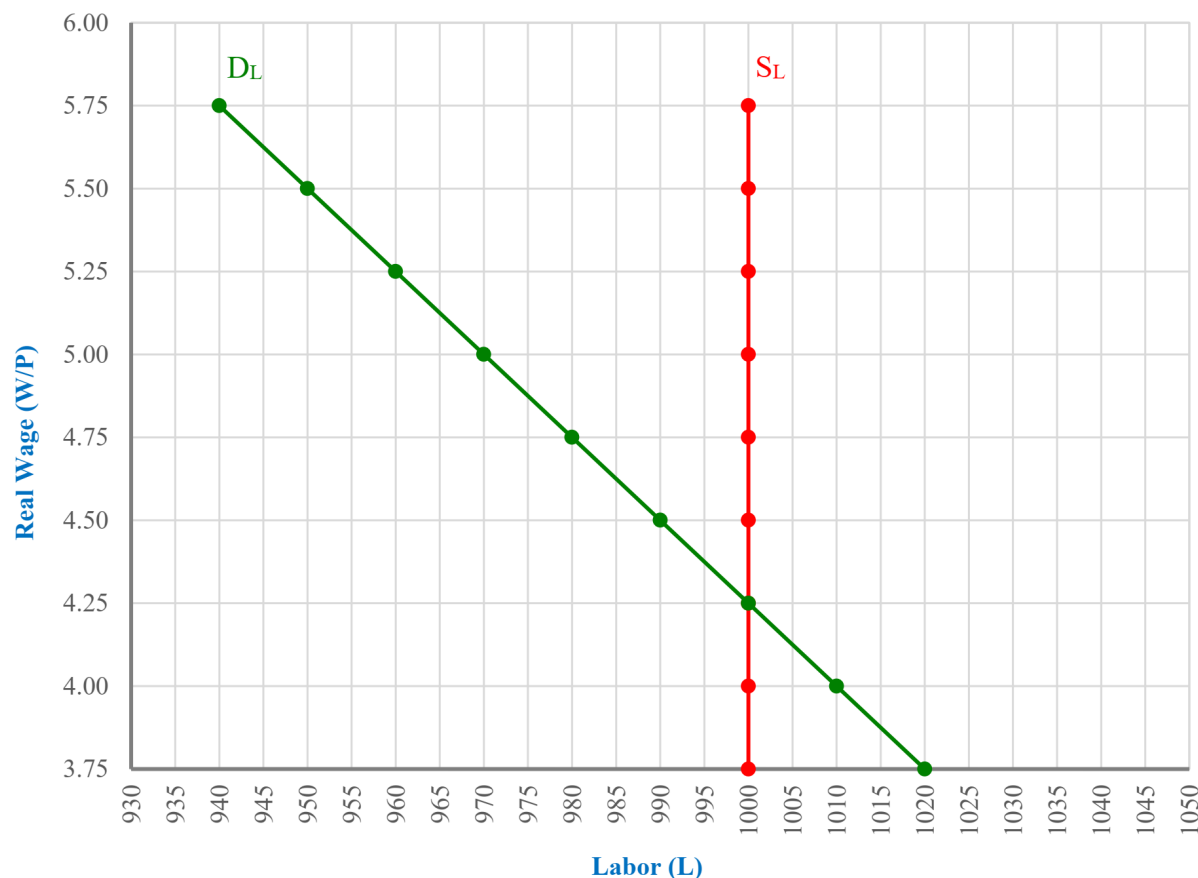\text{Part-Time} &: \quad 3,000,
\end{aligned}
$$

find the unemployment rate that includes marginally attached and part-time workers.

Problem 7. $u_f = 2\%$, $u_s = 0\%$, Okun's $\alpha = 2$, and potential GDP = 125,000.
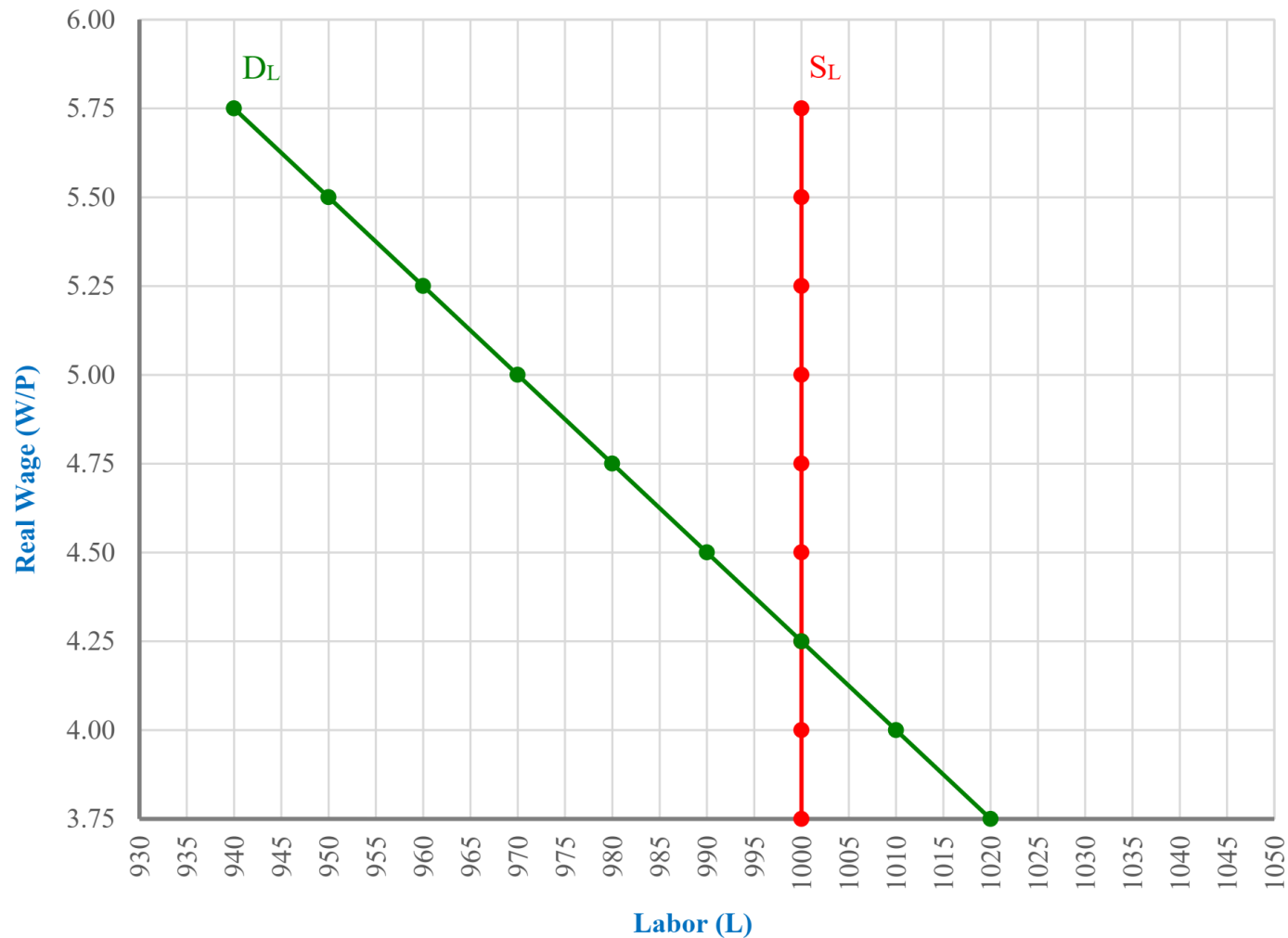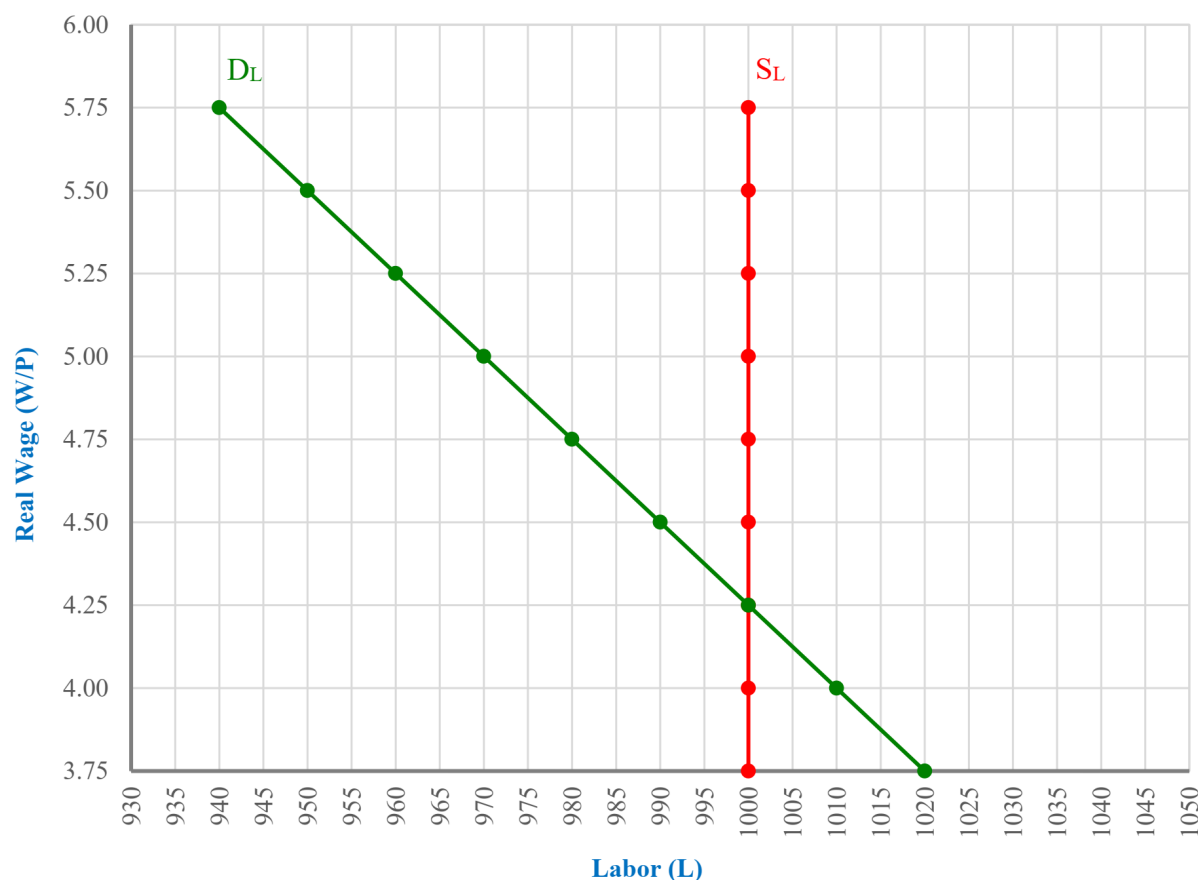

$W = \$425$ and $P = \$100$. This must mean that in this country the cyclical rate of unemployment equals _____ percent and real GDP equals _____ units.

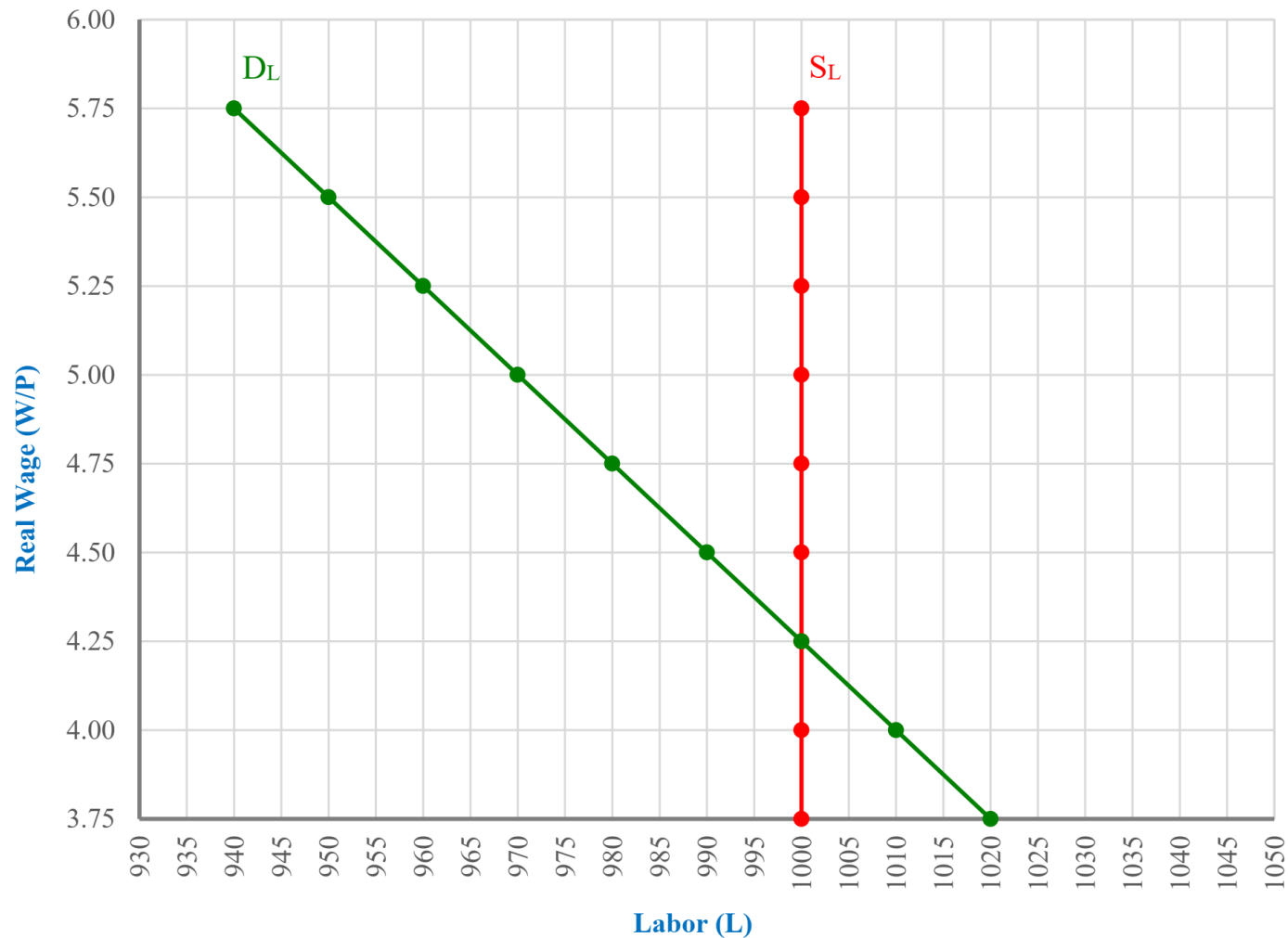**Problem 8.** $u_f = 2\%$, $u_s = 0\%$, Okun's $\alpha = 2$, and potential GDP = 125,000.

Originally, $W = \$425$ and $P = \$100$. The stock market crashes and people buy fewer goods and services. This causes the nominal wage to fall by 8% and the price level to fall by 32%. This must mean that in this country the cyclical rate of unemployment equals _____ percent and the real GDP equals _____ units.

Problem 9. $u_f = 2\%$, $u_s = 0\%$, Okun's $\alpha = 2$, and potential GDP = 125,000.

Originally, $W = \$425$ and $P = \$100$. The stock market rallies and people buy more goods and service. This causes the nominal wage to increase by 28% and the price level to increase by 36%. This must mean that the cyclical rate of unemployment equals _____ percent and the real GDP equals _____ units.

Problem 10. $u_f = 2\%$, $u_s = 3\%$, Okun's $\alpha = 2$, and potential GDP = 100,000.

$W = \$500$ and $P = \$100$. This must mean that in this country the cyclical rate of unemployment equals _____ percent and real GDP equals _____ units.