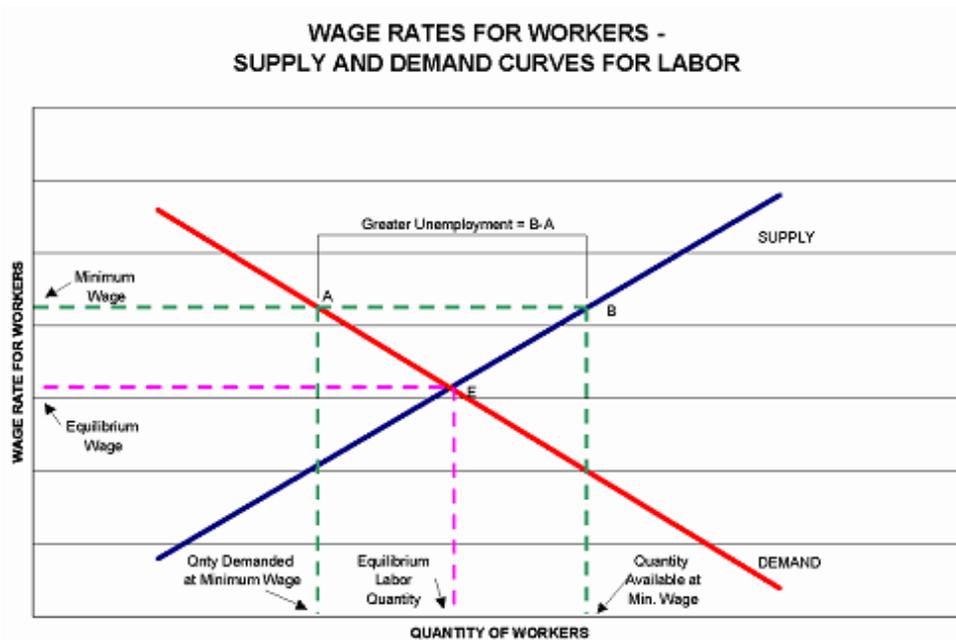Minimum Wage. Determine the unemployment.
D: P = 800 - Q
S: P = 100 + Q
MW: P = 640

Solution

The minimum wage raises unemployment if it is higher the equilibrium wage. The market equilibrium occurs when the quantity of workers supplied is equal to quantity of workers demanded in a market.

D = S
$800 - Q = 100 + Q$
$Q* = 350$
If equilibrium labor quantity equals 350, we can plug the equilibrium quantity into ether demand or supply function and receive market equilibrium wage.

$800 - 350 = 450$

The minimum wage increases wage rate from 450 to 640, so we will receive unemployment.

The unemployment is calculated as difference between quantity available at minimum wage and quantity demanded at minimum wage.

Determine the quantity available at minimum wage

$S = MW$

$100 + Q = 640$

$Qs = 540$

Determine the quantity demanded at minimum wage

$D = MW$

$800 - Q = 640$

$Q\,d\ = 160$

Determine the unemployment

$Unemployment\ =\ Qs - Q\,d\ = 540 - 160\ = 380$

Answer
When minimum wage is 640 the unemployment equals 380.