

Cooleconomics
Principles of Economics

Study Question -- Unemployment

1. Behold the following information concerning a hypothetical economy:

Number of people over 16 working: 45 million

Number of discouraged workers over 16: 3 million

Number of people over 16 working part time: 5 million

Official unemployment rate: 5%

Calculate the number of officially unemployed people in the economy

By definition:

$$\text{unemployment rate} = \text{unemployed} / (\text{employed} + \text{unemployed})$$

Now substitute the numbers from the problem:

$$.05 = \text{unemployed} / (45 \text{ million} + \text{unemployed})$$

Now multiply both sides by (45 million + unemployed)

$$.05(45 \text{ million} + \text{unemployed}) = \text{unemployed}$$

Use distributive law to get rid of parentheses:

$$2.25 \text{ million} + .05\text{unemployed} = \text{unemployed}$$

Subtract .05unemployed from both sides:

$$2.25 \text{ million} = .95\text{unemployed}$$

Divide both sides by .95:

$$\mathbf{\text{unemployed}} = 2.25 \text{ million} / .95 = \mathbf{2.36842 \text{ million}} \text{ (rounded)}$$

check the answer:

$$2.36842 \text{ million} / (45 \text{ million} + 2.36842 \text{ million}) = .05? \text{ Yes!}$$