

Quiz 1

1. Real GDP (calculated in units of 2005 dollars) was \$13,312 billion in 2008. If real GDP for 2009 turns out to be \$12,925, calculate the rate of growth of real GDP from 2008 to 2009. [Show the formula that you use.]

$$g = (Y(2009) - Y(2008)) / Y(2008) = (12,925 - 13,312) / 13,312 = -0.0291 \text{ or } -2.91\%$$

2. Assume an economy with a coal producer, a steel producer, and some consumers (who eat steel at every meal); there is no government. In a given year, the coal producer produces 15 million tons of coal and sells it for \$5 per ton. The coal producer pays \$50 million in wages to consumers. The steel producer purchases all of the coal produced (at \$5 per ton), and uses this to produce 5 million tons of steel, which it sells to consumers for \$20 per ton. The steel producer pays \$20 million in wages. All profits are distributed to domestic consumers. Show how to calculate GDP using the income approach. [Make sure that what you are doing is clear!]

The income of the coal producer is
 $(15 \text{ million tons of coal})(\$5/\text{ton}) - (\$50 \text{ million for wages}) = \25 million

The income of the steel producer is
 $(5 \text{ million tons of steel})(\$20/\text{ton}) - (15 \text{ million tons of coal})(\$5/\text{ton})$
 $- (\$20 \text{ million for wages}) = \5 million

The income of the consumer is
 $\$50 \text{ million wages from coal producer}$
 $+ \$20 \text{ million wages from steel producer}$
 $= \$70 \text{ million}$

Thus, the total income in the economy is \$25 million + \$5 million + \$70 million = \$100 million. (This is “gross domestic income”, which is equal to GDP.)