

**34. Correct. The answer is true.** Base year for this index is 2012 when index = 100. You can convert \$800 to 2013 dollars by multiplying it by the price index for 2013 in 2012 dollars. Thus  $\$800 \times (1.03) = \$824$ . Thus real income has fallen from \$824 to \$820 in 2013 dollars. Alternatively you could deflate 2013 back to 2012 dollars by dividing  $820/1.03 = 796.12$ . Again income has fallen. Thus it has fallen from \$800 to 796.12 in 2012 dollars.

In general, a price index for year  $i$  with base year  $b$  is the cost of a basket of goods in year  $i$  divided by the price of the same basket in year  $b$  multiplied by 100 to change it from a share into a percent, Designate the index by  $(i/b) \times 100$ . Thus if a basket cost 50 in year  $i$  and 25 in the base year, the price index for  $i$  in base year  $b$  is  $(50/25) \times 100 = 200$ . Prices are twice as high in year  $i$  as in year  $b$ . The CPI for the base year is  $(\text{cost in base year})/(\text{cost in base year}) \times 100 = 100$ .

To use the index, divide by 100 to convert it back to a share. Thus, the index as a share for year  $i$  with base year  $b$  is  $b/i$ . Convert price in year  $i$  ( $P_i$ ) back to the base year dollars  $P_b$  as follows:

$$P_b = \frac{P_i}{i/b}$$

Or convert base year dollars to year  $i$  dollars as follows:

$$P_b = P_i \frac{b}{i}$$