

# Lesson 4.4 – Understanding Indices



**Goal: Interpret and use price indices to solve problems**

Price Indices help citizens, businesses and industries follow and predict trends in prices.

A **price index** describes the price of an item compared to a base value measured at a particular time or in a particular place.  
(100%)

Statistics Canada tracks price changes using several different indices. The most important is the **CPI** or Consumer Price Index

To determine the CPI, Statistics Canada collects THOUSANDS of price quotations from across the country for a basket of about 600 popular consumer goods and services, from French fries and bus fares to tuition and Internet services



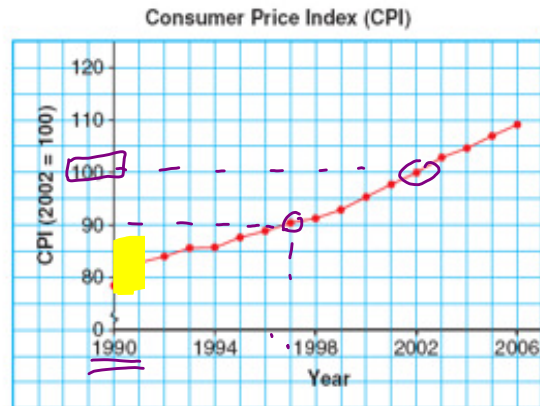
**EXAMPLE 1** Use this CPI graph to answer the following questions.

a) What is the base year for the CPI?

2002  
(look for where CPI = 100)

b) In what year was the cost of the basket of goods about 90% of the base cost?

1997  
(Look for CPI = 90)



c) What was the CPI in 1990? What does this mean?

~ 78%

This means that prices in 1990 were 78% of what they were in 2002.

d) Describe the change in the CPI from 1990 to 1991. What do you notice about the line segment representing this period?

change  
1990 ~ 78% } 5% increase.  
1991 ~ 83%

↳ steepest line segment.  
∴ greatest increase on the graph

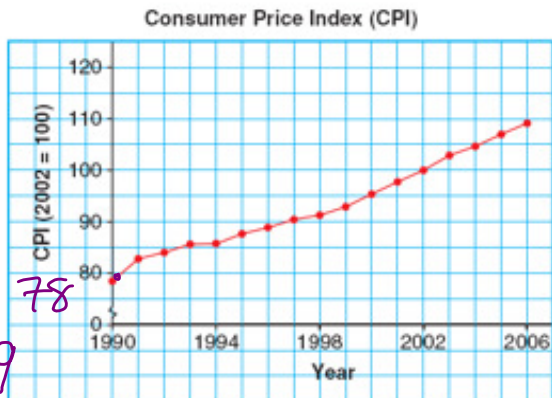
e) Describe the overall trend in the CPI and its significance.

The CPI increases over the years shown.  
Canadians spend more year to year for the same basket of goods.

**EXAMPLE 2** Use the same graph to calculate the following:

- a) Calculate the average annual rate of inflation from 1990 to 2006

Inflation  $\Rightarrow$  how much the cost of goods has increased (as a percentage).



$$\text{Average} = \frac{109 - 78}{16} = \frac{31\%}{16} = 0.019 \rightarrow = 1.9\%$$

- b) Use your answer in part a) to predict the CPI for 2010. Justify your prediction.

$\rightarrow$  1.9% increase each year  
 $\rightarrow$  2006 - 2010  $\Rightarrow$  4 years.  
 1.9%  $\times$  4 years = 7.6%

Total  
 7.6% + 109 = 116.6%  
 We predict the CPI to be 116.6% in 2010.

**EXAMPLE 2** The 2006 UBS Prices and Earnings report includes a comparison of clothing prices in 71 cities. The base price is the price in New York.

- a) Which cities in this table have index values less than 100? What does this tell you?

City	Clothing Price Index (New York = 100)
Zurich	115.6
Oslo	114.4
Dublin	97.5
New York	100.0
Toronto	73.8
Tokyo	148.1
Rome	87.5
Hong Kong	75.0
Delhi	43.8

Toronto, Dublin, Rome, Hong Kong, Delhi,  
 Clothing in these cities cost less than clothing in New York.

- b) How do clothing prices in Zurich and Toronto compare to clothing prices in New York?

Zurich  $\rightarrow$  clothes cost 15.6% more than New York on average

Toronto  $\rightarrow$  clothes cost 26.2% less than New York on average.

$$\frac{100 - 73.8}{100} = 26.2\%$$