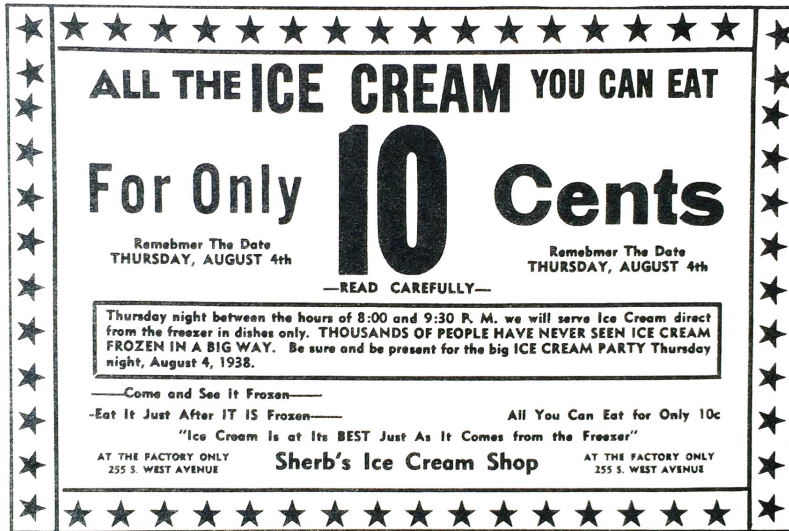


## The Beginning of Dairy Queen

Sherb Noble introduced soft-serve ice cream with this ad. The product<sup>1</sup> was so successful that two years later he opened his first soft-serve shop, Dairy Queen, in Joliet, Illinois.



This sale was a huge success! 1,600 all-you-can-eat servings were sold during this opening one and one-half hour campaign.

### Part One: Introduction

1. How do you think the value of 10 cents in 1938 compares to the value of 10 cents today?
2. How much do you think an all-you can eat ice cream would cost today? Just take a guess.
3. If you were offering this sale today, what quantity of ice cream would you figure that a person could eat ... on average?
4. How much do you think an all-you-can-eat-ice cream deal would cost today?
  - a. If the seller broke even (a fair price)?
  - b. If the seller made money (a relatively high price)?
  - c. If the seller lost money (a relatively good price)?
5. How would you go about figuring out the Dairy Queen cost, in present day dollars, of the 10-cent ice cream special and whether Sherb broke even, made money, or lost money in 1938? What info might you need? What would you research?

**Part Two: Useful Information**

**United States Consumer Priced Index (CPI) and inflation**

The United States Bureau of Labor and Statistics (BLS) figures out several ways to calculate the value of money.

For the most part all of their calculations involve creating a "basket of goods and services" in a certain population and noting how the price of those goods and services change monthly and then, on average, yearly.

Here are some of the CPI indices that are used:

**CPI-U** (CPI for all Urban consumers) - This is a consumer price index that intends to analyze the index for approximately 80% of the US population. It is limited to costs in urban populations of 2,500 or more inhabitants. All of these indices are relative to \$100 in 1982-84 spending.

**CPI-W** (CPI for Urban Wage Earners and Clerical Workers) - Excluded from this population are professional, managerial, and technical workers; the self-employed; short-term workers; the unemployed; retirees and others not in the labor force. This index is approximately representative of 32% of the US population.

**Core CPI** (Consumer Price Index) - The core CPI is a measure that excludes food and energy from the basket of goods and services that are priced. The BLS believes that food and energy are more volatile than other products and services since they can vary according to drought or high-energy prices that are temporary and not usually sustained. All indices are relative to \$100 in 1982-84 spending.

**Chained CPI for All Urban Consumers (C-CPI-U)** - This index allows for consumer change as to what is in their "market basket" if the price of some items becomes relatively more expensive. For example, if beef becomes expensive, consumers may switch their usual protein purchase to chicken. The chained CPI takes into account these kinds of substitutions and thus reflects a more stable CPI.

**Annual Inflation Rate** = Change in the CPI since the previous year.

$$\text{Inflation rate between any two years} = \frac{\text{Final year's CPI} - \text{Beginning year's CPI}}{\text{Beginning year's CPI}} * 100\%$$

For instance; to convert 10 of 1990 dollars to 2022 dollars you would do the following;

$$\frac{2022 \text{ CPI} - 1990 \text{ CPI}}{1990 \text{ CPI}} * 100\% = \frac{292.7 - 130.7}{130.7} * 100\% = \frac{162}{130.7} * 100\% = 123.95 \%$$

To see how much \$10 of 1990 money would be in 2022, you would increase \$10 by the product of \$10 and the percent inflation.

$$\text{Value of } \$10 \text{ of 1990 money in 2022 dollars} = \$10 + 1.2395 * \$10 = \$22.39$$

- Try it for yourself!** Use the CPI figures in the chart below to calculate how much an item that cost \$5.00 in 1920 would cost today.

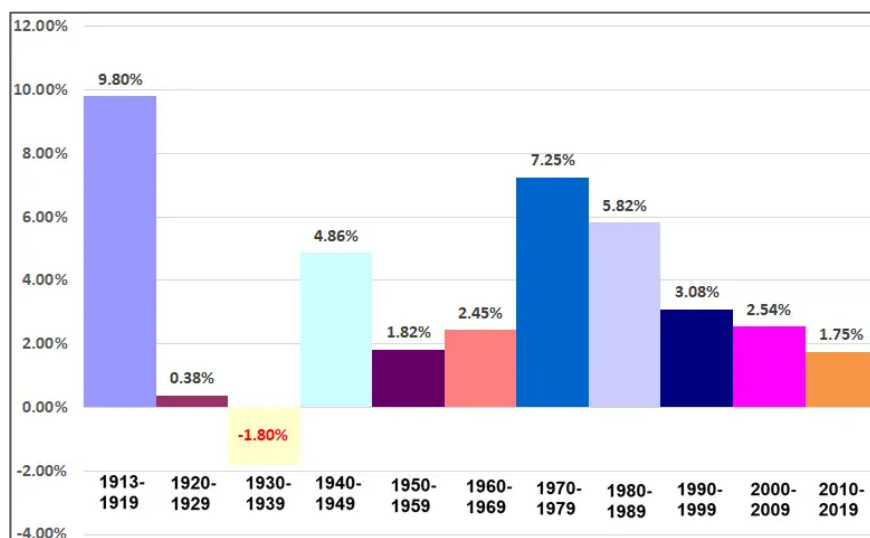
The following 2 CPI tables represent the value of \$10 spent in 1914 and its value in all of the other years.

**Annual average CPU values**

Year	Value of \$10.00 compared to 1914 value	Year	Value of \$10.00 compared to 1914 value	Year	Value of \$10.00 compared to 1914 value	Year	Value of \$10.00 compared to 1914 value	Year	Value of \$10.00 compared to 1914 value
1913	\$9.90	1935	\$13.70	1957	\$28.10	1979	\$72.60	2001	\$177.10
1914	\$10.00	1936	\$13.90	1958	\$28.90	1980	\$82.40	2002	\$179.90
1915	\$10.10	1937	\$14.40	1959	\$29.20	1981	\$90.90	2003	\$184.00
1916	\$10.90	1938	\$14.10	1960	\$29.60	1982	\$96.50	2004	\$188.90
1917	\$12.80	1939	\$13.90	1961	\$29.90	1983	\$99.60	2005	\$195.30
1918	\$15.00	1940	\$14.00	1962	\$30.30	1984	\$103.90	2006	\$201.60
1919	\$17.30	1941	\$14.70	1963	\$30.60	1985	\$107.60	2007	\$207.30
1920	\$20.00	1942	\$16.30	1964	\$31.00	1986	\$109.60	2008	\$215.30
1921	\$17.90	1943	\$17.30	1965	\$31.50	1987	\$113.60	2009	\$214.50

1922	\$16.80	1944	\$17.60	1966	\$32.50	1988	\$118.30	2010	\$218.10
1923	\$17.10	1945	\$18.00	1967	\$33.40	1989	\$124.00	2011	\$224.90
1924	\$17.10	1946	\$19.50	1968	\$34.80	1990	\$130.70	2012	\$229.60
1925	\$17.50	1947	\$22.30	1969	\$36.70	1991	\$136.20	2013	\$233.00
1926	\$17.70	1948	\$24.00	1970	\$38.80	1992	\$140.30	2014	\$236.70
1927	\$17.40	1949	\$23.80	1971	\$40.50	1993	\$144.50	2015	\$237.00
1928	\$17.20	1950	\$24.10	1972	\$41.80	1994	\$148.20	2016	\$240.00
1929	\$17.20	1951	\$26.00	1973	\$44.40	1995	\$152.40	2017	\$245.10
1930	\$16.70	1952	\$26.60	1974	\$49.30	1996	\$156.90	2018	\$251.10
1931	\$15.20	1953	\$26.80	1975	\$53.80	1997	\$160.50	2019	\$255.70
1932	\$13.60	1954	\$26.90	1976	\$56.90	1998	\$163.00	2020	\$258.80
1933	\$12.90	1955	\$26.80	1977	\$60.60	1999	\$166.60	2021	\$271.00
1934	\$13.40	1956	\$27.20	1978	\$65.20	2000	\$172.20	2022	\$292.70

**Average Annual Inflation by Decade & Long Term Average**



### Part Three: Apply the Math

- Use the information about CPI and inflation rates to determine the cost of this all-you-can-eat ice cream sale in present day dollars. Do you think they made or lost money on this promotion?
- Dairy Queen offered an anniversary sale with the same price and timing for the sale on August 4, 2013 at its 3 Kankakee, Illinois stores. That time 4,398 servings (not including refills) were sold. Now that you've done some research on the value of money in 1938 as compared to now, what are your thoughts about Dairy Queen's 2013 anniversary sale?
- How much could a small ice cream cost you in the future? Pick an ice cream price and predict the cost in 20, 30, 40 or 50 years from now. Be sure to show your thinking. The "Average Annual Inflation by Decade" chart on the previous page may help you figure this out.

<sup>1</sup>J.F. McCullough and his son, Alex, developed their soft-serve formula.

Sources: <http://noblestores.com/OriginalDQ/about/history/>; <http://www.dairyqueen.com/us-en/Company/About-Us/>  
[http://www.bls.gov/data/inflation\\_calculator.htm](http://www.bls.gov/data/inflation_calculator.htm)  
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<https://www.minneapolisfed.org/community/financial-and-economic-education/cpi-calculator-information/consumer-price-index-and-inflation-rates-1913>