

**APPENDIX B**

**CONVERSIONS**



## CONVERSIONS

### A Note about Heating Values

The heat content of a fuel is the quantity of energy released by burning a unit amount of that fuel. However, this value is not absolute and can vary according to several factors. For example, empirical formulae for determining the heating value of liquid fuels depend on the fuels' American Petroleum Institute (API) gravity. The API gravity varies depending on the percent by weight of the chemical constituents and impurities in the fuel, both of which are affected by the combination of raw materials used to produce the fuel and by the type of manufacturing process. Temperature and climatic conditions are also factors.

Because of these variations, the heating values in Table B.4 may differ from values in other publications. The figures in this report are representative or average values, not absolute ones. The gross (higher) heating values used here agree with those used by the Energy Information Administration (EIA).

Heating values fall into two categories, usually referred to as “higher” (or gross) and “lower” (or net). If the products of fuel combustion are cooled back to the initial fuel-air or fuel-oxidizer mixture temperature and the water formed during combustion is condensed, the energy released by the process is the higher (gross) heating value. If the products of combustion are cooled to the initial fuel-air temperature, but the water is considered to remain as a vapor, the energy released by the process is the lower (net) heating value. Usually the difference between the gross and net heating values for fuels used in transportation is around 5 to 8 percent; however, it is important to be consistent in their use.

The Transportation Energy Data Book has always used gross heating values for fuel conversion.

**Table B.1**  
**Hydrogen Heat Content**

1 kilogram hydrogen =	
Higher heating value	Lower heating value
134,200 Btu	113,400 Btu
39.3 kWhr	33.2 kWhr
141,600 kJ	119,600 kJ
33,800 kCal	28,560 kCal

**Table B.2**  
**Hydrogen Conversions**

	Weight		Gas		Liquid	
	Pounds (lb)	Kilograms (kg)	Standard cubic feet (SCF)	Normal cubic meter (Nm <sup>3</sup> )	Gallons (gal)	Liters (L)
1 lb	1.0	0.4536	192.00	5.047	1.6928	6.408
1 kg	2.205	1.0	423.3	11.126	3.733	14.128
1 SCF gas	0.005209	0.002363	1.0	0.02628	0.00882	0.0339
1 Nm <sup>3</sup> gas	0.19815	0.08988	38.04	1.0	0.3355	1.2699
1 gal liquid	0.5906	0.2679	113.41	2.981	1.0	3.785
1 L liquid	0.15604	0.07078	29.99	0.77881	0.2642	1.0

**Table B.3**  
**Pressure Conversions**

	Bar	Atmosphere	lb/in <sup>2</sup> (or psi)
Bar	1.0	0.987	14.5
Atmosphere	1.013	1.0	14.696
lb/in <sup>2</sup> (or psi)	0.0689	0.0680	1.0

**Table B.4**  
**Heat Content for Various Fuels**

Conventional gasoline	125,000 Btu/gal (gross) = 115,400 Btu/gal (net)
E10	120,900 Btu/gal (gross) = 112,400 Btu/gal (net)
E15	119,000 Btu/gal (gross) = 109,400 Btu/gal (net)
Hydrogen	134,200 Btu/kg (gross) = 113,400 Btu/kg (net)
Low-sulfur diesel	138,700 Btu/gal (gross) = 128,700 Btu/gal (net)
Biodiesel	126,200 Btu/gal (gross) = 117,100 Btu/gal (net)
Methanol	64,600 Btu/gal (gross) = 56,600 Btu/gal (net)
Ethanol	84,600 Btu/gal (gross) = 75,700 Btu/gal (net)
E85	90,700 Btu/gal (gross) = 81,600 Btu/gal (net)
Aviation gasoline	120,200 Btu/gal (gross) = 112,000 Btu/gal (net)
Liquefied petroleum gas (LPG)	91,300 Btu/gal (gross) = 83,500 Btu/gal (net)
Butane	103,000 Btu/gal (gross) = 93,000 Btu/gal (net)
Jet fuel (naphtha)	127,500 Btu/gal (gross) = 118,700 Btu/gal (net)
Jet fuel (kerosene)	135,000 Btu/gal (gross) = 128,100 Btu/gal (net)
Lubricants	144,400 Btu/gal (gross) = 130,900 Btu/gal (net)
Waxes	131,800 Btu/gal (gross) = 120,200 Btu/gal (net)
Asphalt and road oil	158,000 Btu/gal (gross) = 157,700 Btu/gal (net)
Liquefied natural gas (LNG)	23,700 Btu/lb (gross) = 20,900 Btu/lb (net)
Compressed natural gas (CNG)	22,500 Btu/lb (gross) = 20,200 Btu/lb (net)
Crude petroleum	138,100 Btu/gal (gross) = 131,800 Btu/gal (net)
Fuel Oils	
Residual	149,700 Btu/gal (gross) = 138,400 Btu/gal (net)
Distillate	138,700 Btu/gal (gross) = 131,800 Btu/gal (net)
Coal	
Production average	19.882 x 10 <sup>6</sup> Btu/short ton
Consumption average	19.479 x 10 <sup>6</sup> Btu/short ton

**Note:** Heat content values are approximate. Data are rounded to the nearest hundred.

**Table B.5**  
**Fuel Equivalents**

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1 million bbl crude oil/day	= 0.365 billion bbl crude oil/year = 2.091 quadrillion Btu/year = 107.351 million short tons coal/year = 97.389 million metric tons coal/year = 2.024 trillion ft <sup>3</sup> natural gas/year = 2,206 petajoules/year
1 billion bbl crude oil/year	= 2.740 million bbl crude oil/day = 5.729 quadrillion Btu/year = 294.112 million short tons coal/year = 266.818 million metric tons coal/year = 5.546 trillion ft <sup>3</sup> natural gas/year = 6,044 petajoules/year
1 quadrillion Btu/year	= 8.000 million gasoline gallon equivalents = 0.478 million bbl crude oil/day = 172.551 million bbl crude oil/year = 51.337 million short tons coal/year = 46.573 million metric tons coal/year = 968.054 billion ft <sup>3</sup> natural gas/year = 1,055 petajoules/year
1 billion short tons coal/year	= 0.907 billion metric tons coal/year = 9.315 million bbl crude oil/day = 3.400 billion bbl crude oil/year = 19.479 quadrillion Btu/year = 18.857 trillion ft <sup>3</sup> natural gas/year = 20,550 petajoules/year
1 billion metric tons coal/year	= 1.102 billion short tons coal/year = 8.451 million bbl crude oil/day = 3.085 billion bbl crude oil/year = 17.671 quadrillion btu/year = 17.107 trillion ft <sup>3</sup> natural gas/year = 18,643 petajoules/year
1 trillion ft <sup>3</sup> natural gas/year	= 0.494 million bbl crude oil/day = 0.180 billion bbl crude oil/year = 1.033 quadrillion Btu/year = 53.031 million short tons coal/year = 48.110 million metric tons coal/year = 1,090 petajoules/year
1 petajoule/year	= 453.290 bbl crude oil/day = 165.451 thousand bbl crude oil/year = 0.948 trillion Btu/year = 48.661 thousand short tons coal/year = 44.145 thousand metric tons coal/year = 0.918 billion ft <sup>3</sup> natural gas/year

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**Table B.6**  
**Energy Unit Conversions**

1 Btu	= 778.2 ft-lb	1 kWhr	= 3412 Btu <sup>a</sup>
	= 107.6 kg-m		= 2.655 x 10 <sup>6</sup> ft-lb
	= 1055 J		= 3.671 x 10 <sup>5</sup> kg-m
	= 39.30 x 10 <sup>-5</sup> hp-h		= 3.600 x 10 <sup>6</sup> J
	= 39.85 x 10 <sup>-5</sup> metric hp-h		= 1.341 hp-h
	= 29.31 x 10 <sup>-5</sup> kWhr		= 1.360 metric hp-h
1 kg-m	= 92.95 x 10 <sup>-4</sup> Btu	1 Joule	= 94.78 x 10 <sup>-5</sup> Btu
	= 7.233 ft-lb		= 0.7376 ft-lb
	= 9.806 J		= 0.1020 kg-m
	= 36.53 x 10 <sup>-7</sup> hp-h		= 37.25 x 10 <sup>-8</sup> hp-h
	= 37.04 x 10 <sup>-7</sup> metric hp-h		= 37.77 x 10 <sup>-8</sup> metric hp-h
	= 27.24 x 10 <sup>-7</sup> kWhr		= 27.78 x 10 <sup>-8</sup> kWhr
1 hp-h	= 2544 Btu	1 metric hp-h	= 2510 Btu
	= 1.98 x 10 <sup>6</sup> ft-lb		= 1.953 x 10 <sup>6</sup> ft-lb
	= 2.738 x 10 <sup>6</sup> kgm		= 27.00 x 10 <sup>4</sup> kg-m
	= 2.685 x 10 <sup>6</sup> J		= 2.648 x 10 <sup>6</sup> J
	= 1.014 metric hp-h		= 0.9863 hp-h
	= 0.7475 kWhr		= 0.7355 kWhr

<sup>a</sup>This figure does not take into account the fact that electricity generation and distribution efficiency is approximately 33%. If generation and distribution efficiency are taken into account, 1 kWhr = 10,339 Btu.

**Table B.7**  
**International Energy Conversions**

			Million		
To:	Petajoules	Giga-calories	metric tons of oil equivalent	Million Btu	Gigawatt-hours
From:	<i>multiply by:</i>				
<b>Petajoules</b>	1	238.8 x 10 <sup>3</sup>	2.388 x 10 <sup>-2</sup>	947.8 x 10 <sup>3</sup>	277.8
<b>Gigacalories</b>	4.1868 x 10 <sup>-6</sup>	1	10 <sup>-7</sup>	3.968	1.163 x 10 <sup>-3</sup>
<b>Million metric tons of oil equivalent</b>	41.868	10 <sup>7</sup>	1	3.968 x 10 <sup>7</sup>	11,630
<b>Million Btu</b>	1.0551 x 10 <sup>-6</sup>	0.252	2.52 X 10 <sup>-8</sup>	1	2.931 x 10 <sup>-4</sup>
<b>Gigawatt-hours</b>	3.6 x 10 <sup>-3</sup>	860	8.6 x 10 <sup>-5</sup>	3412	1

**Table B.8**  
**Distance and Velocity Conversions**

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1 in = $83.33 \times 10^{-3}$ ft = $27.78 \times 10^{-3}$ yd = $15.78 \times 10^{-6}$ mile = $25.40 \times 10^{-3}$ m = $0.2540 \times 10^{-6}$ km	1 ft = 12.0 in = 0.33 yd = $189.4 \times 10^{-3}$ mile = 0.3048 m = $0.3048 \times 10^{-3}$ km
1 mile = 63360 in = 5280 ft = 1760 yd = 1609 m = 1.609 km	1 km = 39370 in = 3281 ft = 1093.6 yd = 0.6214 mile = 1000 m
1 ft/sec = 0.3048 m/s = 0.6818 mph = 1.0972 km/h 1 m/sec = 3.281 ft/s = 2.237 mph = 3.600 km/h 1 km/h = 0.9114 ft/s = 0.2778 m/s = 0.6214 mph 1 mph = 1.467 ft/s = 0.4469 m/s = 1.609 km/h	

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**Table B.9**  
**Alternative Measures of Greenhouse Gases**

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1 pound methane, measured in carbon units (CH <sub>4</sub> )	=	1.333 pounds methane, measured at full molecular weight (CH <sub>4</sub> )
1 pound carbon dioxide, measured in carbon units (CO <sub>2</sub> -C)	=	3.6667 pounds carbon dioxide, measured at full molecular weight (CO <sub>2</sub> )
1 pound carbon monoxide, measured in carbon units (CO-C)	=	2.333 pounds carbon monoxide, measured at full molecular weight (CO)
1 pound nitrous oxide, measured in nitrogen units (N <sub>2</sub> O-N)	=	1.571 pounds nitrous oxide, measured at full molecular weight (N <sub>2</sub> O)

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**Table B.10**  
**Volume and Flow Rate Conversions<sup>a</sup>**

1 U.S. gal	= 231 in <sup>3</sup>	1 liter	= 61.02 in <sup>3</sup>
	= 0.1337 ft <sup>3</sup>		= 3.531 x 10 <sup>-2</sup> ft <sup>3</sup>
	= 3.785 liters		= 0.2624 U.S. gal
	= 0.8321 imperial gal		= 0.2200 imperial gal
	= 0.0238 bbl		= 6.29 x 10 <sup>-3</sup> bbl
	= 0.003785 m <sup>3</sup>		= 0.001 m <sup>3</sup>
A U.S. gallon of gasoline weighs 6.2 pounds			
1 imperial gal	= 277.4 in <sup>3</sup>	1 bbl	= 9702 in <sup>3</sup>
	= 0.1606 ft <sup>3</sup>		= 5.615 ft <sup>3</sup>
	= 4.545 liters		= 158.97 liters
	= 1.201 U.S. gal		= 42 U.S. gal
	= 0.0286 bbl		= 34.97 imperial gal
	= 0.004546 m <sup>3</sup>		= 0.15897 m <sup>3</sup>
1 U.S. gal/hr	= 3.209 ft <sup>3</sup> /day		= 1171 ft <sup>3</sup> /year
	= 90.84 liter/day		= 33157 liter/year
	= 19.97 imperial gal/day		= 7289 imperial gal/year
	= 0.5712 bbl/day		= 207.92 bbl/year
For Imperial gallons, multiply above values by 1.201			
1 liter/hr	= 0.8474 ft <sup>3</sup> /day		= 309.3 ft <sup>3</sup> /year
	= 6.298 U.S. gal/day		= 2299 U.S. gal/year
	= 5.28 imperial gal/day		= 1927 imperial gal/year
	= 0.1510 bbl/day		= 55.10 bbl/year
1 bbl/hr	= 137.8 ft <sup>3</sup> /year		= 49187 ft <sup>3</sup> year
	= 1008 U.S. gal/day		= 3.679 x 10 <sup>5</sup> U.S. gal/year
	= 839.3 imperial gal/day		= 3.063 x 10 <sup>5</sup> imperial gal/year
	= 3815 liter/day		= 1.393 x 10 <sup>6</sup> liter/day

<sup>a</sup> The conversions for flow rates are identical to those for volume measures, if the time units are identical.

**Table B.11**  
**Power Conversions**

FROM	TO					
	Horsepower	Kilowatts	Metric horsepower	Ft-lb per sec	Kilocalories per sec	Btu per sec
Horsepower	1	0.7457	1.014	550	0.1781	0.7068
Kilowatts	1.341	1	1.360	737.6	0.239	0.9478
Metric horsepower	0.9863	0.7355	1	542.5	0.1757	0.6971
Ft-lb per sec	$1.36 \times 10^{-3}$	$1.356 \times 10^{-3}$	$1.84 \times 10^{-3}$	1	$0.3238 \times 10^{-3}$	$1.285 \times 10^{-3}$
Kilocalories per sec	5.615	4.184	5.692	3088	1	3.968
Btu per sec	1.415	1.055	1.434	778.2	0.2520	1

**Table B.12**  
**Mass Conversions**

FROM	TO				
	Pound	Kilogram	Short ton	Long ton	Metric ton
Pound	1	0.4536	$5.0 \times 10^{-4}$	$4.4643 \times 10^{-4}$	$4.5362 \times 10^{-4}$
Kilogram	2.205	1	$1.1023 \times 10^{-3}$	$9.8425 \times 10^{-4}$	$1.0 \times 10^{-3}$
Short ton	2,000	907.2	1	0.8929	0.9072
Long ton	2,240	1,106	1.12	1	1.016
Metric ton	2,205	1,000	1.102	0.9842	1

**Table B.13**  
**Fuel Efficiency Conversions**

MPG	Miles/liter	Kilometers/L	L/100 kilometers	Grams of CO <sub>2</sub> per mile <sup>a</sup>	Pounds of CO <sub>2</sub> per mile <sup>a</sup>
10	2.64	4.25	23.52	877.80	1.94
15	3.96	6.38	15.68	585.20	1.29
20	5.28	8.50	11.76	438.90	0.97
25	6.60	10.63	9.41	351.12	0.78
30	7.92	12.75	7.84	292.60	0.65
35	9.25	14.88	6.72	250.80	0.55
40	10.57	17.00	5.88	219.45	0.49
45	11.89	19.13	5.23	195.07	0.43
50	13.21	21.25	4.70	175.56	0.39
55	14.53	23.38	4.28	159.60	0.35
60	15.85	25.51	3.92	146.30	0.32
65	17.17	27.63	3.62	135.05	0.30
70	18.49	29.76	3.36	125.40	0.28
75	19.81	31.88	3.14	117.04	0.26
80	21.13	34.01	2.94	109.73	0.24
85	22.45	36.13	2.77	103.27	0.23
90	23.77	38.26	2.61	97.53	0.22
95	25.09	40.38	2.48	92.40	0.20
100	26.42	42.51	2.35	87.78	0.19
105	27.74	44.64	2.24	83.60	0.18
110	29.06	46.76	2.14	79.80	0.18
115	30.38	48.89	2.05	76.33	0.17
120	31.70	51.01	1.96	73.15	0.16
125	33.02	53.14	1.88	70.22	0.16
130	34.34	55.26	1.81	67.52	0.15
135	35.66	57.39	1.74	65.02	0.14
140	36.98	59.51	1.68	62.70	0.14
145	38.30	61.64	1.62	60.54	0.13
150	39.62	63.76	1.57	58.52	0.13
Formula	MPG/3.785	MPG/[3.785/1.609]	235.24/MPG	8,778/MPG	19.4/MPG

<sup>a</sup> For gasoline-fueled vehicles.

**Table B.14**  
**SI Prefixes and Their Values**

	Value	Prefix	Symbol
One million million millionth	$10^{-18}$	atto	a
One thousand million millionth	$10^{-15}$	femto	f
One million millionth	$10^{-12}$	pico	p
One thousand millionth	$10^{-9}$	nano	n
One millionth	$10^{-6}$	micro	$\mu$
One thousandth	$10^{-3}$	milli	m
One hundredth	$10^{-2}$	centi	c
One tenth	$10^{-1}$	deci	
One	$10^0$		
Ten	$10^1$	deca	
One hundred	$10^2$	hecto	
One thousand	$10^3$	kilo	k
One million	$10^6$	mega	M
One billion <sup>a</sup>	$10^9$	giga	G
One trillion <sup>a</sup>	$10^{12}$	tera	T
One quadrillion <sup>a</sup>	$10^{15}$	peta	P
One quintillion <sup>a</sup>	$10^{18}$	exa	E

<sup>a</sup> Care should be exercised in the use of this nomenclature, especially in foreign correspondence, as it is either unknown or carries a different value in other countries. A "billion," for example, signifies a value of  $10^{12}$  in most other countries.

**Table B.15**  
**Metric Units and Abbreviations**

Quantity	Unit name	Symbol
Energy	Joule	J
Specific energy	Joule/kilogram	J/kg
Specific energy consumption	Joule/kilogram•kilometer	J/(kg•km)
Energy consumption	Joule/kilometer	J/km
Energy economy	kilometer/kilojoule	km/kJ
Power	kilowatt	kW
Specific power	Watt/kilogram	W/kg
Power density	Watt/meter <sup>3</sup>	W/m <sup>3</sup>
Speed	kilometer/hour	km/h
Acceleration	meter/second <sup>2</sup>	m/s <sup>2</sup>
Range (distance)	kilometer	km
Weight	kilogram	kg
Torque	Newton•meter	N•m
Volume	meter <sup>3</sup>	m <sup>3</sup>
Mass; payload	kilogram	kg
Length; width	meter	m
Brake specific fuel consumption	kilogram/Joule	kg/J
Fuel economy (heat engine)	Liters/100 km	L/100 km

**Table B.16**  
**Carbon Coefficients**  
**(Million metric tons carbon per quadrillion Btu)**

Energy Source	Fuel Type	Carbon Coefficients
Coal	Anthracite	28.28
	Bituminous	25.45
	Subbituminous	26.51
	Lignite	26.65
	Coke	31.12
	Coal (All types)	26.00
Natural gas	Natural Gas	14.47
	Flared natural gas	14.92
	Propane	17.20
	Butane	17.71
	Butane/Propane Mix	17.46
Petroleum	Gasoline	19.45
	Diesel fuel	19.95
	Jet Fuel	19.34
	Aviation Gas	18.87
	Kerosene	19.72
	Residual Heating Fuel	21.49
	Petroleum coke	27.85
	Asphalt and Road Oil	20.62
	Lubricants	20.24
	Petrochemical Feedstocks	19.37
	Special Naphthas (solvents)	19.85
	Waxes	19.81
Other petroleum & miscellaneous	19.81	

**Note:** Additional information:

[www.eia.gov/environment/emissions/co2\\_vol\\_mass.cfm](http://www.eia.gov/environment/emissions/co2_vol_mass.cfm)

## **Conversion of Constant Dollar Values**

Many types of information in this data book are expressed in dollars. Generally, constant dollars are used—that is, dollars of a fixed value for a specific year, such as 2010 dollars. Converting current dollars to constant dollars, or converting constant dollars for one year to constant dollars for another year, requires conversion factors (Table B.17 and Table B.18). Table B.17 shows conversion factors for the Consumer Price Index inflation factors. Table B.18 shows conversion factors using the Gross National Product Implicit Price Deflator.

**Table B.17**  
**Consumer Price Inflation (CPI) Index**

<b>From:</b>	<b>1970</b>	<b>1971</b>	<b>1972</b>	<b>1973</b>	<b>1974</b>	<b>1975</b>	<b>1976</b>	<b>1977</b>	<b>1978</b>	<b>1979</b>
<b>1970</b>	1.000	1.044	1.077	1.144	1.271	1.387	1.466	1.562	1.680	1.871
<b>1971</b>	0.958	1.000	1.032	1.096	1.217	1.328	1.405	1.496	1.610	1.793
<b>1972</b>	0.928	0.969	1.000	1.062	1.179	1.287	1.361	1.450	1.560	1.737
<b>1973</b>	0.874	0.912	0.941	1.000	1.110	1.212	1.282	1.365	1.468	1.635
<b>1974</b>	0.787	0.822	0.848	0.901	1.000	1.091	1.154	1.229	1.323	1.473
<b>1975</b>	0.721	0.753	0.777	0.825	0.916	1.000	1.058	1.126	1.212	1.349
<b>1976</b>	0.682	0.712	0.735	0.780	0.866	0.946	1.000	1.065	1.146	1.276
<b>1977</b>	0.640	0.668	0.690	0.733	0.814	0.888	0.939	1.000	1.076	1.198
<b>1978</b>	0.595	0.621	0.641	0.681	0.756	0.825	0.873	0.929	1.000	1.113
<b>1979</b>	0.534	0.558	0.576	0.612	0.679	0.741	0.784	0.835	0.898	1.000
<b>1980</b>	0.471	0.492	0.507	0.539	0.598	0.653	0.691	0.735	0.791	0.881
<b>1981</b>	0.427	0.446	0.460	0.488	0.542	0.592	0.626	0.667	0.717	0.799
<b>1982</b>	0.402	0.420	0.433	0.460	0.511	0.558	0.590	0.628	0.676	0.752
<b>1983</b>	0.390	0.407	0.420	0.446	0.495	0.540	0.571	0.608	0.655	0.729
<b>1984</b>	0.373	0.390	0.402	0.427	0.474	0.518	0.548	0.583	0.628	0.699
<b>1985</b>	0.361	0.376	0.388	0.413	0.458	0.500	0.529	0.563	0.606	0.675
<b>1986</b>	0.354	0.370	0.381	0.405	0.450	0.491	0.519	0.553	0.595	0.662
<b>1987</b>	0.342	0.357	0.368	0.391	0.434	0.474	0.501	0.533	0.574	0.639
<b>1988</b>	0.328	0.342	0.353	0.375	0.417	0.455	0.481	0.512	0.551	0.614
<b>1989</b>	0.313	0.327	0.337	0.358	0.398	0.434	0.459	0.489	0.526	0.585
<b>1990</b>	0.297	0.310	0.320	0.340	0.377	0.412	0.435	0.464	0.499	0.555
<b>1991</b>	0.285	0.297	0.307	0.326	0.362	0.395	0.418	0.445	0.479	0.533
<b>1992</b>	0.277	0.289	0.298	0.316	0.351	0.383	0.406	0.432	0.465	0.517
<b>1993</b>	0.269	0.280	0.289	0.307	0.341	0.372	0.394	0.419	0.451	0.502
<b>1994</b>	0.262	0.273	0.282	0.300	0.333	0.363	0.384	0.409	0.440	0.490
<b>1995</b>	0.255	0.266	0.274	0.291	0.323	0.353	0.373	0.398	0.428	0.476
<b>1996</b>	0.247	0.258	0.266	0.283	0.314	0.343	0.363	0.386	0.416	0.463
<b>1997</b>	0.242	0.252	0.260	0.277	0.307	0.335	0.355	0.378	0.406	0.452
<b>1998</b>	0.238	0.248	0.256	0.272	0.302	0.330	0.349	0.372	0.400	0.445
<b>1999</b>	0.233	0.243	0.251	0.267	0.296	0.323	0.342	0.364	0.391	0.436
<b>2000</b>	0.225	0.235	0.243	0.258	0.286	0.312	0.330	0.352	0.379	0.422
<b>2001</b>	0.219	0.229	0.236	0.251	0.278	0.304	0.321	0.342	0.368	0.410
<b>2002</b>	0.216	0.225	0.232	0.247	0.274	0.299	0.316	0.337	0.362	0.404
<b>2003</b>	0.211	0.220	0.227	0.241	0.268	0.292	0.309	0.329	0.354	0.395
<b>2004</b>	0.205	0.214	0.221	0.235	0.261	0.285	0.301	0.321	0.345	0.384
<b>2005</b>	0.199	0.207	0.214	0.227	0.252	0.275	0.291	0.310	0.334	0.372
<b>2006</b>	0.192	0.201	0.207	0.220	0.245	0.267	0.282	0.301	0.323	0.360
<b>2007</b>	0.187	0.195	0.202	0.214	0.238	0.259	0.274	0.292	0.314	0.350
<b>2008</b>	0.180	0.188	0.194	0.206	0.229	0.250	0.264	0.281	0.303	0.337
<b>2009</b>	0.181	0.189	0.195	0.207	0.230	0.251	0.265	0.282	0.304	0.338
<b>2010</b>	0.178	0.186	0.192	0.204	0.226	0.247	0.261	0.278	0.299	0.333
<b>2011</b>	0.172	0.180	0.186	0.197	0.219	0.239	0.253	0.269	0.290	0.323
<b>2012</b>	0.169	0.176	0.182	0.193	0.215	0.234	0.248	0.264	0.284	0.316
<b>2013</b>	0.167	0.174	0.179	0.191	0.212	0.231	0.244	0.260	0.280	0.312
<b>2014</b>	0.164	0.171	0.177	0.188	0.208	0.227	0.240	0.256	0.275	0.306

**Table B.17**  
**Consumer Price Inflation (CPI) Index (Continued)**

<b>From:</b>	<b>1980</b>	<b>1981</b>	<b>1982</b>	<b>1983</b>	<b>1984</b>	<b>1985</b>	<b>1986</b>	<b>1987</b>	<b>1988</b>	<b>1989</b>
<b>1970</b>	2.124	2.343	2.487	2.567	2.678	2.773	2.825	2.928	3.049	3.196
<b>1971</b>	2.035	2.244	2.383	2.459	2.565	2.657	2.706	2.805	2.921	3.062
<b>1972</b>	1.971	2.175	2.309	2.383	2.486	2.574	2.622	2.718	2.830	2.967
<b>1973</b>	1.856	2.047	2.173	2.243	2.340	2.423	2.468	2.559	2.664	2.793
<b>1974</b>	1.671	1.844	1.957	2.020	2.108	2.183	2.223	2.304	2.400	2.515
<b>1975</b>	1.532	1.690	1.794	1.851	1.931	2.000	2.037	2.112	2.199	2.305
<b>1976</b>	1.448	1.598	1.696	1.750	1.826	1.891	1.926	1.996	2.079	2.179
<b>1977</b>	1.360	1.500	1.592	1.644	1.715	1.776	1.809	1.875	1.952	2.046
<b>1978</b>	1.264	1.394	1.480	1.528	1.594	1.650	1.681	1.742	1.814	1.902
<b>1979</b>	1.135	1.252	1.329	1.372	1.431	1.482	1.510	1.565	1.629	1.708
<b>1980</b>	1.000	1.103	1.171	1.209	1.261	1.306	1.330	1.379	1.436	1.505
<b>1981</b>	0.906	1.000	1.062	1.096	1.143	1.184	1.206	1.250	1.301	1.364
<b>1982</b>	0.854	0.942	1.000	1.032	1.077	1.115	1.136	1.177	1.226	1.285
<b>1983</b>	0.827	0.913	0.969	1.000	1.043	1.080	1.100	1.141	1.188	1.245
<b>1984</b>	0.793	0.875	0.929	0.959	1.000	1.036	1.055	1.093	1.139	1.193
<b>1985</b>	0.766	0.845	0.897	0.926	0.966	1.000	1.019	1.056	1.099	1.152
<b>1986</b>	0.752	0.829	0.880	0.909	0.948	0.982	1.000	1.036	1.079	1.131
<b>1987</b>	0.725	0.800	0.849	0.877	0.915	0.947	0.965	1.000	1.041	1.092
<b>1988</b>	0.697	0.768	0.816	0.842	0.878	0.910	0.926	0.960	1.000	1.048
<b>1989</b>	0.665	0.733	0.778	0.803	0.838	0.868	0.884	0.916	0.954	1.000
<b>1990</b>	0.630	0.695	0.738	0.762	0.795	0.823	0.839	0.869	0.905	0.949
<b>1991</b>	0.605	0.667	0.709	0.731	0.763	0.790	0.805	0.834	0.869	0.910
<b>1992</b>	0.587	0.648	0.688	0.710	0.741	0.767	0.781	0.810	0.843	0.884
<b>1993</b>	0.570	0.629	0.668	0.689	0.719	0.745	0.758	0.786	0.819	0.858
<b>1994</b>	0.556	0.613	0.651	0.672	0.701	0.726	0.740	0.767	0.798	0.837
<b>1995</b>	0.541	0.596	0.633	0.654	0.682	0.706	0.719	0.745	0.776	0.814
<b>1996</b>	0.525	0.579	0.615	0.635	0.662	0.686	0.699	0.724	0.754	0.790
<b>1997</b>	0.513	0.566	0.601	0.621	0.647	0.670	0.683	0.708	0.737	0.773
<b>1998</b>	0.506	0.558	0.592	0.611	0.637	0.660	0.672	0.697	0.726	0.761
<b>1999</b>	0.495	0.546	0.579	0.598	0.624	0.646	0.658	0.682	0.710	0.744
<b>2000</b>	0.479	0.528	0.560	0.578	0.603	0.625	0.636	0.660	0.687	0.720
<b>2001</b>	0.465	0.513	0.545	0.562	0.587	0.608	0.619	0.641	0.668	0.700
<b>2002</b>	0.458	0.505	0.536	0.554	0.578	0.598	0.609	0.631	0.658	0.689
<b>2003</b>	0.448	0.494	0.524	0.541	0.565	0.585	0.596	0.617	0.643	0.674
<b>2004</b>	0.436	0.481	0.511	0.527	0.550	0.570	0.580	0.601	0.626	0.656
<b>2005</b>	0.422	0.465	0.494	0.510	0.532	0.551	0.561	0.582	0.606	0.635
<b>2006</b>	0.409	0.451	0.479	0.494	0.515	0.534	0.544	0.563	0.587	0.615
<b>2007</b>	0.397	0.438	0.465	0.480	0.501	0.519	0.529	0.548	0.571	0.598
<b>2008</b>	0.383	0.422	0.448	0.463	0.483	0.500	0.509	0.528	0.549	0.576
<b>2009</b>	0.384	0.424	0.450	0.464	0.484	0.502	0.511	0.530	0.551	0.578
<b>2010</b>	0.378	0.417	0.443	0.457	0.476	0.493	0.503	0.521	0.543	0.569
<b>2011</b>	0.366	0.404	0.429	0.443	0.462	0.478	0.487	0.505	0.526	0.551
<b>2012</b>	0.359	0.396	0.420	0.434	0.453	0.469	0.477	0.495	0.515	0.540
<b>2013</b>	0.354	0.390	0.414	0.428	0.446	0.462	0.470	0.488	0.508	0.532
<b>2014</b>	0.348	0.384	0.408	0.421	0.439	0.455	0.463	0.480	0.500	0.524



**Table B.17**  
**Consumer Price Inflation (CPI) Index (Continued)**

<b>From:</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
1970	3.369	3.510	3.616	3.724	3.820	3.928	4.044	4.137	4.201	4.294
1971	3.227	3.363	3.464	3.568	3.659	3.763	3.874	3.963	4.025	4.114
1972	3.127	3.258	3.356	3.457	3.545	3.646	3.754	3.840	3.900	3.986
1973	2.944	3.068	3.160	3.255	3.338	3.432	3.534	3.615	3.671	3.752
1974	2.651	2.763	2.846	2.931	3.006	3.091	3.183	3.256	3.306	3.379
1975	2.429	2.532	2.608	2.686	2.755	2.833	2.916	2.983	3.030	3.097
1976	2.297	2.394	2.466	2.540	2.605	2.678	2.757	2.821	2.865	2.928
1977	2.157	2.248	2.315	2.384	2.446	2.515	2.589	2.649	2.690	2.749
1978	2.005	2.089	2.152	2.216	2.273	2.337	2.406	2.462	2.500	2.555
1979	1.800	1.876	1.933	1.990	2.041	2.099	2.161	2.211	2.245	2.295
1980	1.586	1.653	1.703	1.754	1.799	1.850	1.904	1.948	1.978	2.022
1981	1.438	1.498	1.543	1.590	1.630	1.677	1.726	1.766	1.793	1.833
1982	1.354	1.411	1.454	1.497	1.536	1.579	1.626	1.663	1.689	1.726
1983	1.312	1.367	1.409	1.451	1.488	1.530	1.575	1.611	1.637	1.673
1984	1.258	1.311	1.350	1.391	1.426	1.467	1.510	1.545	1.569	1.603
1985	1.215	1.266	1.304	1.343	1.377	1.416	1.458	1.492	1.515	1.548
1986	1.193	1.243	1.280	1.318	1.352	1.391	1.432	1.464	1.487	1.520
1987	1.151	1.199	1.235	1.272	1.305	1.342	1.381	1.413	1.435	1.467
1988	1.105	1.151	1.186	1.221	1.253	1.288	1.326	1.357	1.378	1.408
1989	1.054	1.098	1.131	1.165	1.195	1.229	1.265	1.294	1.315	1.344
1990	1.000	1.042	1.073	1.106	1.134	1.166	1.200	1.228	1.247	1.275
1991	0.960	1.000	1.030	1.061	1.088	1.119	1.152	1.178	1.197	1.223
1992	0.932	0.971	1.000	1.030	1.056	1.086	1.118	1.144	1.162	1.187
1993	0.904	0.943	0.971	1.000	1.026	1.055	1.086	1.111	1.128	1.153
1994	0.882	0.919	0.947	0.975	1.000	1.028	1.059	1.083	1.100	1.124
1995	0.858	0.894	0.921	0.948	0.972	1.000	1.030	1.053	1.070	1.093
1996	0.833	0.868	0.894	0.921	0.945	0.971	1.000	1.023	1.039	1.062
1997	0.814	0.849	0.874	0.900	0.923	0.950	0.978	1.000	1.016	1.038
1998	0.802	0.836	0.861	0.887	0.909	0.935	0.963	0.985	1.000	1.022
1999	0.785	0.818	0.842	0.867	0.890	0.915	0.942	0.963	0.978	1.000
2000	0.759	0.791	0.815	0.839	0.861	0.885	0.911	0.932	0.947	0.967
2001	0.738	0.769	0.792	0.816	0.837	0.861	0.886	0.906	0.920	0.941
2002	0.727	0.757	0.780	0.803	0.824	0.847	0.872	0.892	0.906	0.926
2003	0.710	0.740	0.763	0.785	0.805	0.828	0.853	0.872	0.886	0.905
2004	0.692	0.721	0.743	0.765	0.785	0.807	0.831	0.850	0.863	0.882
2005	0.669	0.697	0.718	0.740	0.759	0.780	0.803	0.822	0.835	0.853
2006	0.648	0.676	0.696	0.717	0.735	0.756	0.778	0.796	0.809	0.826
2007	0.630	0.657	0.677	0.697	0.715	0.735	0.757	0.774	0.786	0.804
2008	0.607	0.633	0.652	0.671	0.688	0.708	0.729	0.745	0.757	0.774
2009	0.602	0.635	0.654	0.674	0.691	0.710	0.731	0.748	0.760	0.777
2010	0.599	0.625	0.643	0.663	0.680	0.699	0.720	0.736	0.748	0.764
2011	0.581	0.605	0.624	0.642	0.659	0.678	0.698	0.714	0.725	0.741
2012	0.569	0.593	0.611	0.629	0.645	0.664	0.683	0.699	0.710	0.726
2013	0.561	0.585	0.602	0.620	0.636	0.654	0.674	0.689	0.700	0.715
2014	0.552	0.575	0.593	0.610	0.626	0.644	0.663	0.678	0.689	0.704

**Table B.17**  
**Consumer Price Inflation (CPI) Index (Continued)**

<b>From:</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>1970</b>	4.438	4.564	4.637	4.742	4.869	5.034	5.196	5.344	5.549	5.529
<b>1971</b>	4.252	4.373	4.442	4.543	4.664	4.822	4.978	5.120	5.316	5.297
<b>1972</b>	4.120	4.237	4.304	4.402	4.519	4.672	4.823	4.960	5.151	5.132
<b>1973</b>	3.878	3.989	4.052	4.144	4.255	4.399	4.541	4.670	4.849	4.832
<b>1974</b>	3.493	3.592	3.649	3.732	3.832	3.961	4.089	4.206	4.367	4.352
<b>1975</b>	3.201	3.292	3.344	3.420	3.511	3.630	3.747	3.854	4.002	3.988
<b>1976</b>	3.026	3.112	3.162	3.234	3.320	3.432	3.543	3.644	3.784	3.770
<b>1977</b>	2.842	2.922	2.969	3.036	3.117	3.223	3.327	3.421	3.553	3.540
<b>1978</b>	2.641	2.716	2.759	2.822	2.897	2.995	3.092	3.180	3.302	3.290
<b>1979</b>	2.372	2.439	2.478	2.534	2.602	2.690	2.777	2.856	2.966	2.955
<b>1980</b>	2.090	2.149	2.183	2.233	2.292	2.370	2.447	2.516	2.613	2.604
<b>1981</b>	1.894	1.948	1.979	2.024	2.078	2.149	2.218	2.281	2.369	2.360
<b>1982</b>	1.784	1.835	1.864	1.907	1.958	2.024	2.089	2.149	2.231	2.223
<b>1983</b>	1.729	1.778	1.806	1.847	1.897	1.961	2.024	2.082	2.162	2.154
<b>1984</b>	1.657	1.705	1.731	1.771	1.818	1.880	1.940	1.996	2.072	2.065
<b>1985</b>	1.600	1.646	1.672	1.710	1.756	1.815	1.874	1.927	2.001	1.994
<b>1986</b>	1.571	1.616	1.641	1.679	1.724	1.782	1.839	1.892	1.964	1.957
<b>1987</b>	1.516	1.559	1.584	1.620	1.663	1.719	1.775	1.825	1.895	1.889
<b>1988</b>	1.456	1.497	1.521	1.555	1.597	1.651	1.704	1.753	1.820	1.813
<b>1989</b>	1.389	1.428	1.451	1.484	1.523	1.575	1.626	1.672	1.736	1.730
<b>1990</b>	1.318	1.355	1.376	1.408	1.445	1.494	1.542	1.586	1.647	1.641
<b>1991</b>	1.264	1.300	1.321	1.351	1.387	1.434	1.480	1.522	1.581	1.575
<b>1992</b>	1.227	1.262	1.282	1.311	1.346	1.392	1.437	1.478	1.535	1.529
<b>1993</b>	1.192	1.226	1.245	1.273	1.307	1.352	1.395	1.435	1.490	1.485
<b>1994</b>	1.162	1.195	1.214	1.242	1.275	1.318	1.360	1.399	1.453	1.448
<b>1995</b>	1.130	1.162	1.180	1.207	1.240	1.281	1.323	1.360	1.413	1.408
<b>1996</b>	1.098	1.129	1.147	1.173	1.204	1.245	1.285	1.321	1.372	1.367
<b>1997</b>	1.073	1.103	1.121	1.146	1.177	1.217	1.256	1.292	1.341	1.337
<b>1998</b>	1.056	1.087	1.104	1.129	1.159	1.198	1.237	1.272	1.321	1.316
<b>1999</b>	1.034	1.063	1.080	1.104	1.134	1.172	1.210	1.245	1.292	1.288
<b>2000</b>	1.000	1.028	1.045	1.069	1.097	1.134	1.171	1.204	1.250	1.246
<b>2001</b>	0.972	1.000	1.016	1.039	1.067	1.103	1.138	1.171	1.216	1.211
<b>2002</b>	0.957	0.984	1.000	1.023	1.050	1.086	1.121	1.153	1.197	1.193
<b>2003</b>	0.936	0.963	0.978	1.000	1.027	1.061	1.096	1.127	1.170	1.166
<b>2004</b>	0.912	0.938	0.952	0.974	1.000	1.034	1.067	1.098	1.140	1.136
<b>2005</b>	0.882	0.907	0.921	0.942	0.967	1.000	1.032	1.062	1.102	1.098
<b>2006</b>	0.854	0.878	0.892	0.913	0.937	0.969	1.000	1.028	1.068	1.064
<b>2007</b>	0.831	0.854	0.868	0.887	0.911	0.942	0.972	1.000	1.038	1.035
<b>2008</b>	0.800	0.823	0.836	0.855	0.877	0.907	0.936	0.963	1.000	0.996
<b>2009</b>	0.803	0.825	0.839	0.858	0.881	0.910	0.940	0.966	1.004	1.000
<b>2010</b>	0.790	0.812	0.825	0.844	0.866	0.896	0.925	0.951	0.987	0.984
<b>2011</b>	0.766	0.787	0.800	0.818	0.840	0.868	0.896	0.922	0.957	0.954
<b>2012</b>	0.750	0.771	0.784	0.801	0.823	0.851	0.878	0.903	0.938	0.934
<b>2013</b>	0.739	0.760	0.772	0.790	0.811	0.838	0.865	0.890	0.924	0.921
<b>2014</b>	0.727	0.748	0.760	0.777	0.798	0.825	0.852	0.876	0.909	0.906

**Table B.17**  
**Consumer Price Inflation (CPI) Index (Continued)**

<b>From:</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>
<b>1970</b>	5.620	5.797	5.917	6.004	6.101
<b>1971</b>	5.384	5.554	5.669	5.752	5.845
<b>1972</b>	5.217	5.381	5.493	5.573	5.664
<b>1973</b>	4.911	5.066	5.171	5.247	5.332
<b>1974</b>	4.423	4.563	4.657	4.725	4.802
<b>1975</b>	4.053	4.181	4.268	4.330	4.400
<b>1976</b>	3.832	3.953	4.035	4.094	4.161
<b>1977</b>	3.598	3.712	3.789	3.844	3.907
<b>1978</b>	3.344	3.450	3.521	3.573	3.631
<b>1979</b>	3.004	3.098	3.162	3.209	3.261
<b>1980</b>	2.646	2.730	2.786	2.827	2.873
<b>1981</b>	2.399	2.475	2.526	2.563	2.604
<b>1982</b>	2.260	2.331	2.379	2.414	2.453
<b>1983</b>	2.189	2.258	2.305	2.339	2.377
<b>1984</b>	2.099	2.165	2.210	2.242	2.278
<b>1985</b>	2.027	2.091	2.134	2.165	2.200
<b>1986</b>	1.990	2.052	2.095	2.126	2.160
<b>1987</b>	1.920	1.980	2.021	2.051	2.084
<b>1988</b>	1.843	1.901	1.941	1.969	2.001
<b>1989</b>	1.759	1.814	1.852	1.879	1.909
<b>1990</b>	1.668	1.721	1.757	1.782	1.811
<b>1991</b>	1.601	1.652	1.686	1.710	1.738
<b>1992</b>	1.554	1.603	1.636	1.660	1.687
<b>1993</b>	1.509	1.557	1.589	1.612	1.638
<b>1994</b>	1.471	1.518	1.549	1.572	1.597
<b>1995</b>	1.431	1.476	1.507	1.529	1.553
<b>1996</b>	1.390	1.434	1.463	1.485	1.509
<b>1997</b>	1.359	1.401	1.430	1.451	1.475
<b>1998</b>	1.338	1.380	1.409	1.429	1.452
<b>1999</b>	1.309	1.350	1.378	1.398	1.421
<b>2000</b>	1.266	1.306	1.333	1.353	1.375
<b>2001</b>	1.231	1.270	1.296	1.315	1.337
<b>2002</b>	1.212	1.250	1.276	1.295	1.316
<b>2003</b>	1.185	1.222	1.248	1.266	1.287
<b>2004</b>	1.154	1.191	1.215	1.233	1.253
<b>2005</b>	1.117	1.152	1.176	1.193	1.212
<b>2006</b>	1.082	1.116	1.139	1.156	1.174
<b>2007</b>	1.052	1.085	1.107	1.124	1.142
<b>2008</b>	1.013	1.045	1.066	1.082	1.100
<b>2009</b>	1.016	1.048	1.070	1.086	1.103
<b>2010</b>	1.000	1.032	1.053	1.068	1.086
<b>2011</b>	0.969	1.000	1.021	1.036	1.052
<b>2012</b>	0.950	0.980	1.000	1.015	1.031
<b>2013</b>	0.936	0.966	0.986	1.000	1.016
<b>2014</b>	0.921	0.950	0.970	0.984	1.000

**Source:**  
U.S. Bureau of Labor Statistics.

**Table B.18**  
**Gross National Product Implicit Price Deflator**

<b>From:</b>	<b>1970</b>	<b>1971</b>	<b>1972</b>	<b>1973</b>	<b>1974</b>	<b>1975</b>	<b>1976</b>	<b>1977</b>	<b>1978</b>	<b>1979</b>
<b>1970</b>	1.000	1.051	1.097	1.156	1.260	1.377	1.453	1.543	1.651	1.788
<b>1971</b>	0.952	1.000	1.043	1.100	1.199	1.310	1.382	1.468	1.571	1.701
<b>1972</b>	0.912	0.958	1.000	1.055	1.149	1.256	1.325	1.407	1.506	1.630
<b>1973</b>	0.865	0.909	0.948	1.000	1.090	1.191	1.256	1.334	1.428	1.546
<b>1974</b>	0.794	0.834	0.870	0.918	1.000	1.093	1.153	1.224	1.311	1.419
<b>1975</b>	0.726	0.763	0.796	0.840	0.915	1.000	1.055	1.121	1.199	1.298
<b>1976</b>	0.688	0.723	0.755	0.796	0.867	0.948	1.000	1.062	1.137	1.231
<b>1977</b>	0.648	0.681	0.711	0.749	0.817	0.892	0.942	1.000	1.070	1.159
<b>1978</b>	0.606	0.636	0.664	0.700	0.763	0.834	0.880	0.934	1.000	1.083
<b>1979</b>	0.559	0.588	0.613	0.647	0.705	0.770	0.813	0.863	0.924	1.000
<b>1980</b>	0.513	0.539	0.563	0.593	0.647	0.707	0.745	0.792	0.847	0.917
<b>1981</b>	0.469	0.493	0.515	0.543	0.591	0.646	0.682	0.724	0.775	0.839
<b>1982</b>	0.442	0.464	0.485	0.511	0.557	0.608	0.642	0.682	0.730	0.790
<b>1983</b>	0.425	0.447	0.466	0.492	0.536	0.585	0.617	0.656	0.702	0.760
<b>1984</b>	0.411	0.431	0.450	0.475	0.517	0.565	0.596	0.633	0.678	0.734
<b>1985</b>	0.398	0.418	0.436	0.460	0.501	0.548	0.578	0.614	0.657	0.711
<b>1986</b>	0.390	0.410	0.428	0.451	0.491	0.537	0.566	0.602	0.644	0.697
<b>1987</b>	0.380	0.399	0.417	0.440	0.479	0.523	0.552	0.586	0.628	0.679
<b>1988</b>	0.367	0.386	0.403	0.425	0.463	0.506	0.533	0.567	0.606	0.656
<b>1989</b>	0.353	0.371	0.388	0.409	0.445	0.487	0.513	0.545	0.584	0.632
<b>1990</b>	0.341	0.358	0.374	0.394	0.429	0.469	0.495	0.526	0.563	0.609
<b>1991</b>	0.330	0.346	0.362	0.381	0.415	0.454	0.479	0.509	0.544	0.589
<b>1992</b>	0.322	0.339	0.353	0.373	0.406	0.444	0.468	0.497	0.532	0.576
<b>1993</b>	0.315	0.331	0.345	0.364	0.397	0.434	0.457	0.486	0.520	0.563
<b>1994</b>	0.308	0.324	0.338	0.357	0.389	0.425	0.448	0.476	0.509	0.551
<b>1995</b>	0.302	0.317	0.331	0.349	0.381	0.416	0.439	0.466	0.499	0.540
<b>1996</b>	0.297	0.312	0.325	0.343	0.374	0.408	0.431	0.458	0.490	0.530
<b>1997</b>	0.292	0.306	0.320	0.337	0.367	0.401	0.424	0.450	0.481	0.521
<b>1998</b>	0.288	0.303	0.316	0.334	0.363	0.397	0.419	0.445	0.476	0.516
<b>1999</b>	0.284	0.299	0.312	0.329	0.358	0.392	0.413	0.439	0.470	0.508
<b>2000</b>	0.278	0.292	0.305	0.322	0.350	0.383	0.404	0.429	0.459	0.497
<b>2001</b>	0.272	0.286	0.298	0.314	0.343	0.374	0.395	0.419	0.449	0.486
<b>2002</b>	0.268	0.281	0.294	0.310	0.337	0.369	0.389	0.413	0.442	0.479
<b>2003</b>	0.262	0.276	0.288	0.303	0.331	0.361	0.381	0.405	0.433	0.469
<b>2004</b>	0.255	0.268	0.280	0.295	0.322	0.352	0.371	0.394	0.422	0.457
<b>2005</b>	0.248	0.260	0.271	0.286	0.312	0.341	0.360	0.382	0.409	0.442
<b>2006</b>	0.240	0.252	0.263	0.278	0.303	0.331	0.349	0.370	0.397	0.429
<b>2007</b>	0.234	0.246	0.256	0.270	0.295	0.322	0.340	0.361	0.386	0.418
<b>2008</b>	0.229	0.241	0.252	0.265	0.289	0.316	0.333	0.354	0.379	0.410
<b>2009</b>	0.228	0.239	0.250	0.263	0.287	0.313	0.331	0.351	0.376	0.407
<b>2010</b>	0.225	0.236	0.246	0.260	0.283	0.309	0.326	0.347	0.371	0.402
<b>2011</b>	0.220	0.232	0.242	0.255	0.278	0.303	0.320	0.340	0.364	0.394
<b>2012</b>	0.217	0.228	0.237	0.250	0.273	0.298	0.315	0.334	0.358	0.387
<b>2013</b>	0.213	0.224	0.234	0.247	0.269	0.294	0.310	0.329	0.352	0.381
<b>2014</b>	0.210	0.220	0.230	0.243	0.264	0.289	0.305	0.324	0.346	0.375
<b>2015</b>	0.207	0.217	0.226	0.239	0.260	0.284	0.300	0.319	0.341	0.369

**Table B.18**  
**Gross National Product Implicit Price Deflator (Continued)**

<b>From:</b>	<b>1980</b>	<b>1981</b>	<b>1982</b>	<b>1983</b>	<b>1984</b>	<b>1985</b>	<b>1986</b>	<b>1987</b>	<b>1988</b>	<b>1989</b>
<b>1970</b>	1.949	2.131	2.263	2.353	2.436	2.514	2.565	2.631	2.723	2.830
<b>1971</b>	1.854	2.028	2.153	2.239	2.318	2.392	2.441	2.504	2.591	2.693
<b>1972</b>	1.777	1.943	2.064	2.145	2.222	2.293	2.339	2.399	2.484	2.580
<b>1973</b>	1.685	1.843	1.957	2.034	2.107	2.174	2.218	2.275	2.355	2.447
<b>1974</b>	1.547	1.691	1.796	1.867	1.933	1.995	2.036	2.088	2.161	2.246
<b>1975</b>	1.415	1.548	1.644	1.709	1.769	1.826	1.863	1.911	1.978	2.055
<b>1976</b>	1.341	1.467	1.558	1.619	1.677	1.731	1.766	1.811	1.875	1.948
<b>1977</b>	1.263	1.381	1.467	1.525	1.579	1.629	1.662	1.705	1.765	1.834
<b>1978</b>	1.180	1.290	1.370	1.425	1.475	1.522	1.553	1.593	1.649	1.714
<b>1979</b>	1.090	1.192	1.266	1.316	1.363	1.406	1.435	1.472	1.523	1.583
<b>1980</b>	1.000	1.093	1.161	1.207	1.250	1.290	1.316	1.350	1.398	1.452
<b>1981</b>	0.915	1.000	1.062	1.104	1.143	1.180	1.204	1.235	1.278	1.328
<b>1982</b>	0.861	0.942	1.000	1.040	1.076	1.111	1.133	1.163	1.203	1.250
<b>1983</b>	0.828	0.906	0.962	1.000	1.035	1.069	1.090	1.118	1.158	1.203
<b>1984</b>	0.800	0.875	0.929	0.966	1.000	1.032	1.053	1.080	1.118	1.162
<b>1985</b>	0.775	0.848	0.900	0.936	0.969	1.000	1.020	1.047	1.083	1.126
<b>1986</b>	0.760	0.831	0.882	0.917	0.950	0.980	1.000	1.026	1.062	1.103
<b>1987</b>	0.741	0.810	0.860	0.894	0.926	0.956	0.975	1.000	1.035	1.075
<b>1988</b>	0.716	0.782	0.831	0.864	0.895	0.923	0.942	0.966	1.000	1.039
<b>1989</b>	0.689	0.753	0.800	0.831	0.861	0.888	0.906	0.930	0.962	1.000
<b>1990</b>	0.664	0.726	0.771	0.802	0.830	0.857	0.874	0.897	0.928	0.964
<b>1991</b>	0.643	0.703	0.746	0.776	0.803	0.829	0.846	0.867	0.898	0.933
<b>1992</b>	0.628	0.687	0.730	0.758	0.785	0.810	0.827	0.848	0.878	0.912
<b>1993</b>	0.614	0.671	0.713	0.741	0.767	0.792	0.808	0.828	0.858	0.891
<b>1994</b>	0.601	0.657	0.698	0.725	0.751	0.775	0.791	0.811	0.840	0.872
<b>1995</b>	0.588	0.644	0.683	0.710	0.736	0.759	0.775	0.795	0.822	0.855
<b>1996</b>	0.578	0.632	0.671	0.698	0.722	0.746	0.761	0.780	0.808	0.839
<b>1997</b>	0.568	0.621	0.660	0.686	0.710	0.733	0.748	0.767	0.794	0.825
<b>1998</b>	0.562	0.615	0.653	0.679	0.703	0.725	0.740	0.759	0.786	0.816
<b>1999</b>	0.554	0.606	0.644	0.669	0.693	0.715	0.729	0.748	0.774	0.805
<b>2000</b>	0.542	0.592	0.629	0.654	0.677	0.699	0.713	0.732	0.757	0.787
<b>2001</b>	0.530	0.579	0.615	0.639	0.662	0.683	0.697	0.715	0.740	0.769
<b>2002</b>	0.522	0.570	0.606	0.630	0.652	0.673	0.687	0.704	0.729	0.757
<b>2003</b>	0.511	0.559	0.594	0.617	0.639	0.660	0.673	0.691	0.715	0.743
<b>2004</b>	0.498	0.544	0.578	0.601	0.622	0.642	0.655	0.672	0.696	0.723
<b>2005</b>	0.482	0.527	0.560	0.582	0.603	0.622	0.635	0.651	0.674	0.700
<b>2006</b>	0.468	0.512	0.543	0.565	0.585	0.604	0.616	0.632	0.654	0.679
<b>2007</b>	0.456	0.498	0.529	0.550	0.570	0.588	0.600	0.615	0.637	0.662
<b>2008</b>	0.447	0.489	0.519	0.540	0.559	0.577	0.588	0.604	0.625	0.649
<b>2009</b>	0.444	0.485	0.515	0.536	0.555	0.572	0.584	0.599	0.620	0.644
<b>2010</b>	0.438	0.479	0.508	0.529	0.547	0.565	0.576	0.591	0.612	0.636
<b>2011</b>	0.429	0.469	0.499	0.518	0.537	0.554	0.565	0.580	0.600	0.623
<b>2012</b>	0.422	0.461	0.490	0.509	0.527	0.544	0.555	0.570	0.590	0.613
<b>2013</b>	0.416	0.455	0.483	0.502	0.520	0.536	0.547	0.561	0.581	0.604
<b>2014</b>	0.409	0.447	0.475	0.493	0.511	0.527	0.538	0.552	0.571	0.593
<b>2015</b>	0.402	0.440	0.467	0.486	0.503	0.519	0.530	0.543	0.562	0.584

**Table B.18**  
**Gross National Product Implicit Price Deflator (Continued)**

<b>From:</b>	<b>1990</b>	<b>1991</b>	<b>1992</b>	<b>1993</b>	<b>1994</b>	<b>1995</b>	<b>1996</b>	<b>1997</b>	<b>1998</b>	<b>1999</b>
<b>1970</b>	2.935	3.033	3.102	3.176	3.243	3.311	3.372	3.429	3.467	3.517
<b>1971</b>	2.793	2.886	2.952	3.022	3.086	3.151	3.209	3.263	3.299	3.346
<b>1972</b>	2.676	2.766	2.829	2.896	2.958	3.020	3.075	3.128	3.162	3.207
<b>1973</b>	2.538	2.623	2.683	2.746	2.805	2.863	2.916	2.966	2.998	3.041
<b>1974</b>	2.329	2.407	2.462	2.520	2.574	2.628	2.676	2.722	2.751	2.791
<b>1975</b>	2.131	2.203	2.253	2.307	2.356	2.405	2.449	2.491	2.518	2.554
<b>1976</b>	2.020	2.088	2.135	2.186	2.233	2.279	2.321	2.361	2.387	2.421
<b>1977</b>	1.902	1.966	2.011	2.058	2.102	2.146	2.185	2.223	2.247	2.279
<b>1978</b>	1.777	1.837	1.879	1.923	1.964	2.005	2.042	2.077	2.099	2.130
<b>1979</b>	1.642	1.697	1.735	1.776	1.814	1.852	1.886	1.918	1.939	1.967
<b>1980</b>	1.506	1.556	1.592	1.630	1.664	1.699	1.730	1.760	1.779	1.805
<b>1981</b>	1.377	1.423	1.456	1.490	1.522	1.554	1.582	1.609	1.627	1.650
<b>1982</b>	1.297	1.340	1.371	1.403	1.433	1.463	1.490	1.516	1.532	1.554
<b>1983</b>	1.247	1.289	1.319	1.350	1.379	1.408	1.433	1.458	1.474	1.495
<b>1984</b>	1.205	1.245	1.273	1.304	1.331	1.359	1.384	1.408	1.423	1.444
<b>1985</b>	1.167	1.206	1.234	1.263	1.290	1.317	1.341	1.364	1.379	1.399
<b>1986</b>	1.144	1.182	1.209	1.238	1.264	1.291	1.315	1.337	1.352	1.371
<b>1987</b>	1.115	1.153	1.179	1.207	1.233	1.259	1.282	1.303	1.318	1.337
<b>1988</b>	1.078	1.114	1.139	1.166	1.191	1.216	1.238	1.259	1.273	1.291
<b>1989</b>	1.037	1.072	1.096	1.122	1.146	1.170	1.192	1.212	1.225	1.243
<b>1990</b>	1.000	1.033	1.057	1.082	1.105	1.128	1.149	1.169	1.181	1.198
<b>1991</b>	0.968	1.000	1.023	1.047	1.069	1.092	1.112	1.131	1.143	1.159
<b>1992</b>	0.946	0.978	1.000	1.024	1.046	1.067	1.087	1.106	1.118	1.134
<b>1993</b>	0.924	0.955	0.977	1.000	1.021	1.043	1.062	1.080	1.092	1.107
<b>1994</b>	0.905	0.935	0.956	0.979	1.000	1.021	1.040	1.057	1.069	1.084
<b>1995</b>	0.886	0.916	0.937	0.959	0.979	1.000	1.018	1.036	1.047	1.062
<b>1996</b>	0.870	0.899	0.920	0.942	0.962	0.982	1.000	1.017	1.028	1.043
<b>1997</b>	0.856	0.884	0.905	0.926	0.946	0.966	0.983	1.000	1.011	1.025
<b>1998</b>	0.847	0.875	0.895	0.916	0.936	0.955	0.973	0.989	1.000	1.014
<b>1999</b>	0.835	0.862	0.882	0.903	0.922	0.942	0.959	0.975	0.986	1.000
<b>2000</b>	0.816	0.843	0.863	0.883	0.902	0.921	0.938	0.954	0.964	0.978
<b>2001</b>	0.798	0.824	0.843	0.863	0.882	0.900	0.917	0.932	0.942	0.956
<b>2002</b>	0.786	0.812	0.830	0.850	0.868	0.886	0.903	0.918	0.928	0.941
<b>2003</b>	0.770	0.796	0.814	0.834	0.851	0.869	0.885	0.900	0.910	0.923
<b>2004</b>	0.750	0.775	0.792	0.811	0.829	0.846	0.861	0.876	0.886	0.898
<b>2005</b>	0.726	0.751	0.768	0.786	0.803	0.820	0.835	0.849	0.858	0.870
<b>2006</b>	0.705	0.728	0.745	0.763	0.779	0.795	0.810	0.824	0.832	0.844
<b>2007</b>	0.686	0.709	0.726	0.743	0.759	0.775	0.789	0.802	0.811	0.823
<b>2008</b>	0.673	0.696	0.712	0.729	0.744	0.760	0.773	0.787	0.795	0.807
<b>2009</b>	0.668	0.690	0.706	0.723	0.738	0.754	0.768	0.781	0.789	0.800
<b>2010</b>	0.659	0.681	0.697	0.713	0.729	0.744	0.758	0.770	0.779	0.790
<b>2011</b>	0.647	0.668	0.683	0.700	0.715	0.729	0.743	0.756	0.764	0.775
<b>2012</b>	0.635	0.657	0.672	0.688	0.702	0.717	0.730	0.743	0.751	0.761
<b>2013</b>	0.626	0.647	0.662	0.677	0.692	0.706	0.719	0.732	0.740	0.750
<b>2014</b>	0.616	0.636	0.651	0.666	0.680	0.695	0.707	0.719	0.727	0.738
<b>2015</b>	0.606	0.626	0.641	0.656	0.670	0.684	0.696	0.708	0.716	0.727

**Table B.18**  
**Gross National Product Implicit Price Deflator (Continued)**

<b>From:</b>	<b>2000</b>	<b>2001</b>	<b>2002</b>	<b>2003</b>	<b>2004</b>	<b>2005</b>	<b>2006</b>	<b>2007</b>	<b>2008</b>	<b>2009</b>
<b>1970</b>	3.596	3.679	3.735	3.810	3.915	4.040	4.164	4.275	4.359	4.393
<b>1971</b>	3.422	3.501	3.555	3.626	3.725	3.845	3.963	4.068	4.148	4.180
<b>1972</b>	3.280	3.355	3.407	3.475	3.570	3.685	3.798	3.899	3.976	4.006
<b>1973</b>	3.110	3.181	3.230	3.295	3.385	3.494	3.601	3.697	3.770	3.799
<b>1974</b>	2.854	2.920	2.965	3.024	3.107	3.206	3.305	3.393	3.460	3.487
<b>1975</b>	2.612	2.672	2.713	2.767	2.843	2.934	3.025	3.105	3.166	3.191
<b>1976</b>	2.476	2.532	2.571	2.623	2.695	2.781	2.867	2.943	3.001	3.024
<b>1977</b>	2.331	2.384	2.421	2.470	2.537	2.619	2.699	2.771	2.825	2.847
<b>1978</b>	2.178	2.228	2.262	2.307	2.371	2.447	2.522	2.589	2.640	2.660
<b>1979</b>	2.012	2.058	2.090	2.131	2.190	2.260	2.330	2.392	2.439	2.457
<b>1980</b>	1.846	1.888	1.917	1.955	2.009	2.073	2.137	2.194	2.237	2.254
<b>1981</b>	1.688	1.726	1.753	1.788	1.837	1.896	1.954	2.006	2.046	2.062
<b>1982</b>	1.589	1.626	1.651	1.684	1.730	1.785	1.840	1.889	1.926	1.941
<b>1983</b>	1.529	1.564	1.588	1.620	1.664	1.717	1.770	1.817	1.853	1.867
<b>1984</b>	1.476	1.510	1.533	1.564	1.607	1.659	1.710	1.755	1.789	1.803
<b>1985</b>	1.431	1.463	1.486	1.516	1.557	1.607	1.657	1.701	1.734	1.747
<b>1986</b>	1.402	1.434	1.456	1.485	1.526	1.575	1.624	1.667	1.700	1.713
<b>1987</b>	1.367	1.398	1.420	1.448	1.488	1.536	1.583	1.625	1.657	1.670
<b>1988</b>	1.321	1.351	1.372	1.399	1.437	1.484	1.529	1.570	1.601	1.613
<b>1989</b>	1.271	1.300	1.320	1.347	1.383	1.428	1.472	1.511	1.541	1.553
<b>1990</b>	1.225	1.254	1.273	1.298	1.334	1.377	1.419	1.457	1.485	1.497
<b>1991</b>	1.186	1.213	1.232	1.256	1.291	1.332	1.373	1.410	1.437	1.448
<b>1992</b>	1.159	1.186	1.204	1.228	1.262	1.302	1.343	1.378	1.405	1.416
<b>1993</b>	1.132	1.158	1.176	1.200	1.233	1.272	1.311	1.346	1.373	1.383
<b>1994</b>	1.109	1.134	1.152	1.175	1.207	1.246	1.284	1.318	1.344	1.355
<b>1995</b>	1.086	1.111	1.128	1.151	1.182	1.220	1.258	1.291	1.317	1.327
<b>1996</b>	1.067	1.091	1.108	1.130	1.161	1.198	1.235	1.268	1.293	1.303
<b>1997</b>	1.049	1.073	1.089	1.111	1.141	1.178	1.214	1.247	1.271	1.281
<b>1998</b>	1.037	1.061	1.077	1.099	1.129	1.165	1.201	1.233	1.257	1.267
<b>1999</b>	1.023	1.046	1.062	1.083	1.113	1.149	1.184	1.216	1.240	1.249
<b>2000</b>	1.000	1.023	1.039	1.059	1.088	1.123	1.158	1.189	1.212	1.222
<b>2001</b>	0.978	1.000	1.015	1.036	1.064	1.098	1.132	1.162	1.185	1.194
<b>2002</b>	0.963	0.985	1.000	1.020	1.048	1.082	1.115	1.145	1.167	1.176
<b>2003</b>	0.944	0.966	0.980	1.000	1.027	1.060	1.093	1.122	1.144	1.153
<b>2004</b>	0.919	0.940	0.954	0.973	1.000	1.032	1.064	1.092	1.114	1.122
<b>2005</b>	0.890	0.911	0.925	0.943	0.969	1.000	1.031	1.058	1.079	1.087
<b>2006</b>	0.864	0.883	0.897	0.915	0.940	0.970	1.000	1.027	1.047	1.055
<b>2007</b>	0.841	0.861	0.874	0.891	0.916	0.945	0.974	1.000	1.020	1.028
<b>2008</b>	0.825	0.844	0.857	0.874	0.898	0.927	0.955	0.981	1.000	1.008
<b>2009</b>	0.819	0.837	0.850	0.867	0.891	0.920	0.948	0.973	0.992	1.000
<b>2010</b>	0.808	0.826	0.839	0.856	0.879	0.908	0.936	0.960	0.979	0.987
<b>2011</b>	0.792	0.810	0.823	0.839	0.862	0.890	0.917	0.942	0.960	0.968
<b>2012</b>	0.779	0.797	0.809	0.825	0.848	0.875	0.902	0.926	0.944	0.951
<b>2013</b>	0.767	0.785	0.797	0.813	0.835	0.862	0.888	0.912	0.930	0.937
<b>2014</b>	0.755	0.772	0.784	0.800	0.822	0.848	0.874	0.898	0.915	0.922
<b>2015</b>	0.744	0.761	0.772	0.788	0.809	0.835	0.861	0.884	0.901	0.908

**Table B.18**  
**Gross National Product Implicit Price Deflator (Continued)**

<b>From:</b>	<b>2010</b>	<b>2011</b>	<b>2012</b>	<b>2013</b>	<b>2014</b>	<b>2015</b>
<b>1970</b>	4.451	4.539	4.618	4.688	4.767	4.841
<b>1971</b>	4.236	4.319	4.395	4.461	4.536	4.607
<b>1972</b>	4.059	4.140	4.212	4.275	4.348	4.415
<b>1973</b>	3.849	3.925	3.994	4.054	4.123	4.187
<b>1974</b>	3.533	3.602	3.665	3.720	3.784	3.842
<b>1975</b>	3.233	3.297	3.354	3.405	3.463	3.516
<b>1976</b>	3.064	3.125	3.179	3.227	3.282	3.333
<b>1977</b>	2.885	2.942	2.993	3.038	3.090	3.138
<b>1978</b>	2.696	2.749	2.797	2.839	2.887	2.932
<b>1979</b>	2.490	2.539	2.583	2.622	2.667	2.708
<b>1980</b>	2.284	2.329	2.370	2.406	2.447	2.485
<b>1981</b>	2.089	2.130	2.167	2.200	2.237	2.272
<b>1982</b>	1.967	2.006	2.041	2.072	2.107	2.139
<b>1983</b>	1.892	1.929	1.963	1.993	2.027	2.058
<b>1984</b>	1.827	1.863	1.896	1.924	1.957	1.987
<b>1985</b>	1.771	1.806	1.837	1.865	1.896	1.926
<b>1986</b>	1.735	1.770	1.801	1.828	1.859	1.888
<b>1987</b>	1.692	1.725	1.755	1.782	1.812	1.840
<b>1988</b>	1.634	1.667	1.696	1.721	1.751	1.778
<b>1989</b>	1.573	1.604	1.632	1.657	1.685	1.711
<b>1990</b>	1.517	1.547	1.574	1.597	1.625	1.650
<b>1991</b>	1.468	1.497	1.523	1.546	1.572	1.596
<b>1992</b>	1.435	1.463	1.489	1.511	1.537	1.561
<b>1993</b>	1.402	1.429	1.454	1.476	1.501	1.525
<b>1994</b>	1.372	1.400	1.424	1.445	1.470	1.493
<b>1995</b>	1.344	1.371	1.395	1.416	1.440	1.462
<b>1996</b>	1.320	1.346	1.370	1.390	1.414	1.436
<b>1997</b>	1.298	1.324	1.347	1.367	1.390	1.412
<b>1998</b>	1.284	1.309	1.332	1.352	1.375	1.397
<b>1999</b>	1.266	1.291	1.313	1.333	1.354	1.375
<b>2000</b>	1.238	1.262	1.284	1.303	1.324	1.345
<b>2001</b>	1.210	1.234	1.255	1.274	1.295	1.315
<b>2002</b>	1.192	1.215	1.236	1.255	1.275	1.295
<b>2003</b>	1.168	1.191	1.212	1.230	1.250	1.270
<b>2004</b>	1.137	1.160	1.180	1.198	1.217	1.236
<b>2005</b>	1.102	1.123	1.143	1.160	1.179	1.197
<b>2006</b>	1.069	1.090	1.109	1.126	1.144	1.161
<b>2007</b>	1.041	1.062	1.080	1.097	1.114	1.131
<b>2008</b>	1.021	1.041	1.059	1.075	1.092	1.109
<b>2009</b>	1.013	1.033	1.051	1.067	1.084	1.101
<b>2010</b>	1.000	1.020	1.038	1.053	1.070	1.086
<b>2011</b>	0.981	1.000	1.017	1.033	1.048	1.064
<b>2012</b>	0.964	0.983	1.000	1.015	1.030	1.045
<b>2013</b>	0.949	0.968	0.990	1.000	1.015	1.029
<b>2014</b>	0.935	0.954	0.971	0.986	1.000	1.010
<b>2015</b>	0.920	0.940	0.957	0.972	0.990	1.000

**Source:**

U.S. Department of Commerce, Bureau of Economic Analysis, *Survey of Current Business*, Washington, DC, monthly.