

# **Introduction to Business Mathematics**

Gaughan/Scribner



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# ***Introduction to Business Mathematics***

***Edward D. Gaughan***  
*New Mexico State University*

***Edmund A. Scribner***  
*New Mexico State University*



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# Preface

*Introduction to Business Mathematics* is a one-semester course for the student who wishes to master those quantitative principles and techniques so crucial to success in modern business without wading through a lot of complicated mathematics. Whether used as preparation for more advanced courses or as an end in itself, the book's easy-to-follow approach should enable the student to feel at home with the arithmetic used in business.

Chapters 1–4 provide a thorough review of arithmetic, with emphasis on business application. In Chapter 5, the wealth of detailed applications that form the remainder of the book begins to unfold, sharpening the student's arithmetic skills while enriching his or her knowledge of business. It would be helpful to cover Chapter 8 (simple interest) before Chapters 9 and 12, but the other chapters (after Chapter 4) are essentially self-contained and may be covered in any order. Appendix A, The Metric System, may be covered as soon as the students have mastered the content of Chapters 1–3. Appendix B contains some questions similar to those one might encounter on a Civil Service Examination. Students should be referred to the questions as appropriate topics come up in class.

An arithmetic pretest is included. This test is in four parts, each part pertaining to one of the first chapters of the book. The purpose of the pretest is to give you a chance to analyze the strengths and weaknesses of your class and determine how much time to spend on each of the four review chapters.

An important feature of *Introduction to Business Mathematics* is its format, which is designed to build skills and confidence at the same time. Rather than pouring out a flood of information and turning the student loose to “sink or swim” on a problem set, each section takes a logical, step-by-step, knowledge-building approach. Coverage of each topic begins with a carefully explained example. Then it's the student's turn—to try an exercise (a warmup) that covers the concepts introduced in the example. An answer is provided to each exercise at the end of each section to give immediate feedback.

*Introduction to Business Mathematics* includes many features that will assist in the teaching and learning process:

- A systematic approach throughout, with a detailed example for every important topic
- Prompt skill development and confidence building from an exercise following each example
- End-of-section exercises keyed to related examples
- Chapter Reviews keyed to the sections and examples
- A large selection of exercises, at varied levels of difficulty

- Real-world exercises and examples, with data from actual companies
- Tear-out pages for ease of submitting and grading assignments
- Special project, *cases*, at the end of each chapter

*Introduction to Business Mathematics* is intended to be used with the special touch that only an instructor can provide. However, its systematic format and user-friendly style make it suitable for self-study as well.

Finally, we thank the following professionals who reviewed the manuscript. They provided valuable comments, suggestions, and information.

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*Edmund A. Scribner*

# Glossary/Index

**Accounting equation** The fundamental relationship that says that total assets equal total liabilities plus owners' equity. 412

**Acid-test ratio** The quick ratio. 424

**ACRS** Accelerated cost recovery system. A system for computing depreciation for income tax purposes. 311

**Adjusted balance** The amount that would be in an account if all outstanding checks were paid and all deposits in transit recorded. 157

**Ad valorem tax** A tax based on an item's value. 339

**AGI** Adjusted gross income. An important computation on an individual federal income tax return. 331

**Algebraic logic** Logic used by some hand-held calculators. 27

**Amortization** The process of amortizing an amount or balance. A table that shows the amount of amortization for each time period is called an *amortization schedule*. 259

**Amortize** To reduce or "write off" an amount over a specified number of time periods. 259

**Amount of an annuity** The future value of an annuity. 391

**Annuity** A sequence of equal dollar amounts paid or received at the end of each of several equal time periods. 391

**Annuity due** A sequence of equal dollar amounts paid or received at the beginning of each of several equal time periods. 391

**Approximate time** The number of days between two dates, assuming each month has 30 days. 237

**APR** Annual percentage rate. The effective annual interest rate for an installment loan. 271

**Arithmetic logic** Logic used by some hand-held calculators. 28

**Assessed value** A percentage of a property's fair market value used in computing property tax. Also commonly called *assessed valuation*. 339

**Asset** A probable future economic benefit obtained or controlled by a particular individual or organization as a result of past transactions or events. 408

**Automobile insurance** Insurance covering various hazards related to the use of an automobile. Includes

bodily-injury and property-damage liability, comprehensive, and collision insurance. 363

**Average** The sum of a collection of numbers divided by the number of items in the collection. Also called the *mean*. 467

**Average tax rate** The average rate at which all of a taxpayer's income is taxed. Normally lower than the marginal rate. 335

**Balance sheet** A financial statement that shows the assets, liabilities and owners' equity of an organization or individual as of some specified date. 408

**Balloon payment** An installment loan payment that is much larger than the other payments. 267

**Bank discount** A lending method in which the interest on a loan is deducted in advance. Also called *interest in advance*. 245

**Banker's Rule** Interest computed using exact time and ordinary interest. Most lending institutions now use exact time and exact interest. 238

**Bank statement** A statement sent, usually monthly, to the customer by the bank showing all transactions in the account for a certain period of time. 153

**Bar chart** See *bar graph*.

**Bar graph** A graphical method for presenting data. Also called a *bar chart*. 452

**Basic pricing equation** Selling Price = Cost + Markup. 211

**Bondholder** An investor or lender who owns bonds. 439

**Bonds** A common form of long-term borrowing by a corporation or other organization. 439

**Book value** For depreciable property, the original cost minus accumulated depreciation.

**Cash discount** A discount offered to encourage prompt payment of invoices. 205

**Celsius** A temperature scale in the metric system. See page 489 for the formula for converting from the Celsius scale to the Fahrenheit scale. 489

**Centiliter** One hundredth of a liter. 488

**Centimeter** One hundredth of a meter. 487

**Chain discount** A discount consisting of two or more discounts, such as 30/15. The 30% discount is ap-

- plied first; then the 15% discount is applied. 200
- Check** A directive written by the payer, instructing the bank to pay to the payee a specified amount from the payer's account. 145
- Check register** A means of recording transactions in a checking account and computing a balance. 147
- Check stub** Another means of recording transactions and computing the balance in an account. 147
- Circle graph** A graph made from a circle in which the regions indicate how a quantity is divided into parts. 453
- Coinsurance** A requirement that a property insurance policy cover at least some specified percentage of the replacement cost of the property in order that the full amount of a loss can be collected. 364
- COLA** Cost-of-living allowance, or adjustment, usually computed using the CPI. 474
- Commission** Compensation to an employee based on productivity, usually a percentage of sales made by the employee. 176
- Common stock** Stock of a corporation. Holders of common stock have voting rights. Common stock does not have the special characteristics of preferred stock. 430
- Complement** 100% less the discount. For example, the complement of 24% is  $100\% - 24\% = 76\%$ . 200
- Compound interest** Interest computed by multiplying the interest rate by the original principal plus past interest. 377
- Corporation** An organization that is chartered under the laws of a state to carry out some stated purpose. 409
- CPI** Consumer price index. The average price of a "market basket" of consumer goods and services in comparison with base-year (1967) prices. 473
- Current asset** An asset that is expected to be used or converted to cash within a relatively short period, usually one year. 408
- Current liability** A liability that is payable within a relatively short time, usually within one year. 409
- Current ratio** The ratio of current assets to current liabilities. 424
- Decimal** A fraction with denominator a power of ten. 66
- Declining-balance** A depreciation method in which periodic depreciation is calculated as a specified percentage (for example, 200% for double-declining balance) of book value. 295
- Deposits in transit** Deposits made to an account but not yet shown on the current bank statement. 157
- Deposit slip** A record of items to be deposited in a bank account. 145
- Depreciation** The process of spreading or allocating the cost of an item of property over its useful life. 287
- Digits** 0, 1, 2, 3, 4, 5, 6, 7, 8, 9. 1
- Disbursement** A payment of cash, either in currency or by check. 417
- Discounting** Computing the present value of an amount to be paid or received in the future. 385
- Discount on bonds** An amount by which the selling or issue price of a bond is less than face value. 439
- Dividend** A distribution of company earnings to the stockholders of a corporation. 429
- Effective interest** The "true" interest yield to an investor or lender, as contrasted with a stated or nominal rate used in periodic-interest calculations. 271
- End-of-month dating** See *proximo dating*. 206
- Escrow account** An account into which a borrower pays money for safekeeping. The lender later pays the money out on behalf of the borrower to cover taxes, insurance, or other obligations in connection with the loan. 263
- Exact interest** Interest computed using a 365-day year. 237
- Exact time** The exact number of days between two dates. It is customary to count one of, but not both, the beginning and the ending dates. 237.
- Expenses** The costs of assets and services used up in the production of revenue. 417
- Exponential mode** A means of entering numbers in the calculator in scientific notation. 101
- Face value** A specified value of a bond, representing the amount of principal that will be paid to the bondholder at maturity. 439
- Fair market value** The price for which an item could probably be sold under normal conditions. 339
- FICA tax** Federal Insurance Contributions Act tax. Social security tax withheld from the employee's pay and matched by the employer. 179
- FIFO** First-in, first-out. A method of computing the cost of inventory. 318
- Finance charge** The difference between the price of goods purchased and the total amount paid in an installment loan. Most of the finance charge is interest on the loan, but it may also include miscellaneous fees. 268
- Frequency distribution** A table that shows the number of times (the frequency) that a particular value occurs. 459
- Future value** Original principal plus interest. In the case of a loan, the amount due at maturity. 241, 377
- Gram** The basic unit of mass in the metric system. The mass of a paper clip is about one gram. 488
- Gross margin** A synonym for *gross profit*. 323
- Gross markon** See *markup*. 211
- Gross markup** See *markup*. 211
- Gross profit** Net sales minus the cost of goods sold. 323
- Gross profit method** A method of estimating the cost of inventory. 323
- Histogram** A graphical representation of a frequency distribution. 459
- Horizontal analysis** A method of studying percent changes in financial statement items from one period to another. 411
- Income tax** A tax levied on the earnings of individuals, corporations, estates, and trusts. 331
- Index number** A measure of change in the magnitude of an amount compared to the magnitude at some base or reference period. 471
- Installment loan** A loan that is repaid in equal periodic payments called *installments*. 267
- Interest** Money borrowers pay for the use of someone else's money. 226
- Interest formula**  $I = prt$ . 226
- Interest in advance** See *bank discount*. 245



- Inventory** The stock of goods a business holds for sale to its customers. 317
- Inventory turnover** A ratio computed by dividing cost of goods sold by average inventory. 425
- IPD** Implicit price deflator. Measures price changes in all goods and services, not just consumer and whole-sale items. 476
- IRA** Individual retirement account or individual retirement annuity. A tax-sheltered retirement plan available to most wage earners and self-employed persons. 197
- Itemized deductions** Certain personal expenses that individuals may deduct from their income when determining their income tax. 331
- Keogh plan** Also called an H.R.10 plan. A tax-sheltered retirement plan available to self-employed individuals and their employees. 197
- Kilogram** One thousand grams; about 2.2 pounds. 488
- Kilometer** One thousand meters; about 5/8 of a mile. 487
- Liability** A probable future sacrifice of economic benefits arising from an obligation of an individual or organization to give up assets or perform services. A debt. 408
- LIFO** Last-in, first-out. A method of computing the cost of inventory. 319
- Line graph** A graph often used to show data that is time-related. 450
- Liter** One thousand cubic centimeters; slightly more than a quart. 488
- Marginal tax rate** The tax rate that would apply to the next dollar of taxable income. 335
- Markdown** A reduction of the selling price of an item, usually computed as a percent of the original selling price. 219
- Markon** See *markup*. 211
- Markup** The difference between the cost and the selling price. Also called *markon*, *gross profit*, or *gross markup*. 211
- Maturity date** The date a loan is due. 237
- Maturity value** The amount to be repaid to the lender. 228
- Mean** See *average*. 467
- Median** See pages 467–468 for the definition. 468
- Meter** The basic unit of length in the metric system; slightly longer than a yard. 487
- Mill** One tenth of a cent or one thousandth of a dollar. 339
- Milligram** One thousandth of a gram. 489
- Milliliter** One thousandth of a liter. 488
- Millimeter** One thousandth of a meter. 487
- Mortgage loan** A loan secured by specific property of the borrower. Should the borrower fail to make payments as specified in the contract, the lender may take control of the property. 259
- Net cost** List price less trade discount. 199
- Net income** The revenues minus expenses of a business. (Also includes any miscellaneous gains or losses.) 417
- Net purchases** The total amount of goods purchased for resale, minus cash discounts and minus the cost of any goods returned to the seller. 323
- Net sales** The total selling price of goods sold, minus cash discounts and minus selling price of any goods returned by customers. 323
- Ordinary dating** A discount. For example, 2/10,n/30 offers a 2% discount if the amount is paid within 10 days and the net is due in 30 days. 205
- Ordinary interest** Interest computed using a 360-day year. 237
- Ordinary life** Whole life insurance. 353
- Owners' equity** The total assets minus the total liabilities of a business. 409
- Par value** A specified face value of a share of stock. 430
- Percent** A way to write a decimal. To convert a decimal to a percent, move the decimal point two places to the right and affix the percent sign (%). 111
- Piecework** A pay system in which an employee receives wages based on the amount of production accomplished. 175
- Pie graph** See *circle graph*. 453
- Preferred stock** Corporation stock with special characteristics, such as priority in receiving dividends. 430
- Premium (insurance)** An amount paid for insurance coverage. 353
- Premium on bonds** The amount by which the selling or issue price of a bond exceeds face value. 440
- Present value** The value at present of an amount to be paid or received at some future date, discounted at some interest rate. 241, 385
- Pricing equation** Selling price = cost + markup. 211
- Principal** The amount borrowed. 226
- Proceeds** Amount received by the borrower. 228
- Promissory note** A document executed by the borrower; a written promise by the borrower to pay the lender specified amounts on specified dates. 228
- Property tax** An *ad valorem* tax on property. 339
- Proximo dating** A cash discount method; the discount period is counted from the end of the month in which the invoice is dated. If the invoice is dated on the 26th or later, an additional month is added. 206
- Quick ratio** The ratio of cash, receivables, and inventory to current liabilities. 424
- Rate** The interest rate charged for a loan, usually quoted as a percent and most often the annual rate. 226
- Reconciliation** To reconcile a bank statement is to account for the difference between the bank balance and the checkbook balance. The result is the *true* or *adjusted balance*. 157
- Repeating decimal** A decimal such as 0.33..., in which the decimal part continues indefinitely. 95
- Retail method** A method of estimating the cost of inventory. 324
- Retained earnings** A portion of a corporation's stockholders' equity representing accumulated net income over the company's life minus any dividend distributions to stockholders. 409
- Return on sales** The percentage relationship between net income and net sales. 425
- Revenues** Income, usually from the sale of goods or services. 417
- Revolving charge** A flexible credit arrangement in which a buyer may charge purchases to an account



- and later make payments to reduce or eliminate the amount that has built up. 277
- r. o. g. dating** A cash discount method; the discount period is counted from the date of receipt of the goods. 206
- RPN** Reverse polish notation. Logic used by some hand-held calculators. 27
- Rule of 78** A method of computing the amount of unearned finance charge to be refunded to a borrower when an installment loan is paid off early. 272
- Sales tax** A tax on the sale of goods or services. 347
- Scientific notation** Notation in which a number is written as a number between 1 and 10 times a power of 10. 99
- Self-employment tax** A social security tax on the net earnings of a self-employed person. 179
- Settlement option** An arrangement for payments to the beneficiary of a life-insurance policy. 355
- Shareholder** A stockholder of a corporation. 429
- Simple interest** The interest due in a transaction where only the principal earns interest during the term of the loan. 226
- Sinking fund** A fund to which periodic deposits are made in order to save for some future purpose, such as a major purchase or debt payment. 394
- Stated value** A specified face value of a share of stock, similar to *par value*. 430
- Stock** Also called *capital stock*. Shares of ownership of a corporation. 409
- Stock dividend** A distribution of additional shares of stock to the stockholders of a corporation in proportion to the number of shares already held. 429
- Stockholder** An owner of shares of stock of a corporation. 429
- Stockholders' equity** The owners' equity of a business that is organized as a corporation. 409
- Stock split** A doubling, tripling, or other multiplicative increase in the number of shares of a corporation's stock. 433
- Straight-line depreciation** A depreciation method that spreads the cost of an asset over its service life in equal amounts per time period. 287
- Sum-of-years'-digits depreciation** An accelerated depreciation method, often abbreviated *SYD*. 303
- Terminating decimal** A decimal, such as 0.25, with finitely many digits. 95
- Term insurance** A form of life insurance providing coverage for a specified period. 353
- Time** The period of a loan. 226
- Trade discount** A discount offered by manufacturers and wholesalers. 199
- True balance** See *adjusted balance*. 157
- United States rule** A method of computing the annual percentage rate of an installment loan. This method assumes each payment is applied first to interest at a simple periodic rate, with any remainder used to reduce the principal balance. 262
- Units-of-production depreciation** A depreciation method that ties periodic depreciation directly to the level of usage of an asset during the period. 304
- Universal life** A form of life insurance similar to whole life but providing more flexibility in the payment of premiums and possibly a higher investment return. 356
- Vertical analysis** A method of studying the percentage relationship between individual items on a financial statement and some base amount such as total assets or net sales. 411
- Whole life insurance** A form of life insurance that combines insurance coverage with a savings plan. 353
- Yield to maturity** The true or effective rate of return of a bond to the bondholder if the bond is held until it matures (expires). 441
- Zero bracket amount** A standard deductible amount for the purpose of computing an individual's federal income tax. 331

# Arithmetic Pretest

## **PART I    Whole Number Arithmetic**

---

1.  $34 + 165 + 2,003 =$   
(a) 2,102   (b) 2,003   (c) 2,202   (d) 2,303
2.  $4,761 + 23,100 + 14,569 =$   
(a) 42,430   (b) 43,420   (c) 44,430   (d) 45,220
3.  $141 - 56 =$   
(a) 96   (b) 85   (c) 86   (d) 95
4.  $45,321 - 16,847 =$   
(a) 27,473   (b) 26,474   (c) 28,474   (d) 28,484
5.  $456 \times 6 =$   
(a) 2,736   (b) 2,636   (c) 2,726   (d) 2,546
6.  $342 \times 70 =$   
(a) 24,930   (b) 24,944   (c) 23,940   (d) 29,540
7.  $24 \times 56 =$   
(a) 1,433   (b) 1,344   (c) 1,444   (d) 1,334
8.  $9 \overline{)486} =$   
(a) 54   (b) 65   (c) 56   (d) 64
9.  $18 \overline{)8,120} =$   
(a) 450 R 10   (b) 451 R 2   (c) 452 R 16   (d) 446 R 12
10. How many 6-oz servings of orange juice can be made from three 16-oz containers of orange juice?  
(a) 8   (b) 12   (c) 48   (d) 32
11. George drives 650 miles on 27 gallons of fuel. What is his average miles per gallon rounded off to the nearest mile?  
(a) 20   (b) 25   (c) 24   (d) 27

## PART II Fractions

---

12.  $\frac{2}{3} + \frac{3}{4} =$   
(a)  $\frac{5}{7}$  (b)  $\frac{5}{12}$  (c)  $\frac{17}{12}$  (d)  $\frac{11}{12}$
13.  $1\frac{2}{5} + 2\frac{1}{4} =$   
(a)  $3\frac{1}{3}$  (b)  $3\frac{3}{20}$  (c)  $4\frac{1}{5}$  (d)  $3\frac{13}{20}$
14.  $\frac{5}{6} - \frac{1}{3} =$   
(a)  $\frac{1}{2}$  (b)  $\frac{4}{6}$  (c)  $\frac{9}{16}$  (d)  $\frac{2}{3}$
15.  $12\frac{1}{4} - 8\frac{5}{8} =$   
(a)  $4\frac{3}{8}$  (b)  $3\frac{5}{8}$  (c)  $4\frac{3}{4}$  (d)  $3\frac{1}{4}$
16.  $8 \times \frac{3}{4} =$   
(a) 6 (b)  $\frac{32}{3}$  (c)  $8\frac{3}{4}$  (d)  $\frac{2}{3}$
17.  $1\frac{5}{8} \times \frac{2}{3} =$   
(a)  $1\frac{1}{12}$  (b)  $1\frac{5}{12}$  (c)  $1\frac{7}{24}$  (d)  $\frac{15}{24}$
18.  $1\frac{5}{8} \div 1\frac{1}{2} =$   
(a)  $1\frac{1}{4}$  (b)  $2\frac{1}{4}$  (c)  $\frac{13}{12}$  (d)  $\frac{12}{13}$
19.  $\frac{12}{27} =$   
(a)  $\frac{1}{7}$  (b)  $\frac{4}{3}$  (c)  $\frac{4}{9}$  (d)  $\frac{3}{8}$
20.  $4\frac{7}{8} =$   
(a)  $\frac{28}{8}$  (b)  $\frac{36}{8}$  (c)  $\frac{39}{8}$  (d)  $\frac{19}{8}$
21. In a shipment of 615 items,  $\frac{2}{5}$  were defective. How many were defective?  
(a) 315 (b) 275 (c) 256 (d) 246

22. Paul purchased a car and made a down payment of \$500,  $\frac{1}{4}$  of the purchase price. What was the purchase price?  
(a) \$2,000 (b) \$2,500 (c) \$1,750 (d) \$1,250

### **PART III Decimals**

---

23.  $28.9 + 13.7 =$   
(a) 42.6 (b) 32.6 (c) 31.79 (d) 30.27
24.  $28.4 - 19.7 =$   
(a) 9.3 (b) 11.7 (c) 8.7 (d) 9.7
25.  $2.0003 + 1.067 + 2.9 =$   
(a) 5.90673 (b) 5.970 (c) 5.1097 (d) 5.9673
26.  $45.6 \times 12.3 =$   
(a) 560.88 (b) 56.088 (c) 5608.8 (d) 5.6088
27.  $236.8 \times 100 =$   
(a) 23.68 (b) 2368.0 (c) 23680 (d) 236800
28.  $10.488 \div 2.3 =$   
(a) 4.56 (b) 0.456 (c) 45.6 (d) 456.0
29.  $45.68 \div 200 =$   
(a) 22.84 (b) 2.284 (c) 0.2284 (d) 0.02284
30.  $\frac{5}{8} =$   
(a) 0.63 (b) 0.625 (c) 0.0625 (d) 6.25
31.  $1\frac{3}{8} =$   
(a) 1.375 (b) 0.1345 (c) 1.245 (d) 1.625
32.  $0.75 =$   
(a)  $\frac{3}{4}$  (b)  $\frac{7}{8}$  (c)  $\frac{5}{6}$  (d)  $\frac{2}{3}$
33.  $6.25 =$   
(a)  $6\frac{1}{8}$  (b)  $6\frac{3}{8}$  (c)  $6\frac{1}{5}$  (d)  $6\frac{1}{4}$
34. Mary buys  $4\frac{3}{4}$  yards of material for \$8.75 per yard. What is the cost of the material? (Round up to the nearest cent.)  
(a) \$42.55 (b) \$40.75 (c) \$41.56 (d) \$41.57
35. Jean's pay for a 35-hour work week was \$189. What is her hourly rate of pay?  
(a) \$6.15 (b) \$5.70 (c) \$5.60 (d) \$5.40

## **PART IV    Percent**

---

36.  $15\% =$   
(a)  $\frac{3}{20}$  (b)  $\frac{1}{15}$  (c)  $\frac{1}{6}$  (d)  $\frac{3}{16}$
37.  $\frac{1}{4} =$   
(a) 30% (b) 25% (c) 40% (d) 20%
38. 25% of 84 is  
(a) 16 (b) 21 (c) 42 (d) 18
39. 150% of 64 is  
(a) 32 (b) 80 (c) 96 (d) 100
40. 45 is what percent of 72?  
(a) 62.5% (b) 45% (c) 54% (d) 140%
41. Joshua scored 80% correct answers on a test with 55 questions.  
How many did he answer correctly?  
(a) 44 (b) 47 (c) 12 (d) 11
42. Jessica made a 20% down payment of \$560 on a purchase of some furniture. What was the total price of the furniture?  
(a) \$2,400 (b) \$1,120 (c) \$2,600 (d) \$2,800

# Contents

## 1

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3 Bedrooms As Low As  
**\$12,800<sup>00</sup>**  
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**\$150<sup>00</sup>** Per Month



# 1

## Whole Number Arithmetic

*Someone has said, "God created the whole numbers; the rest are the inventions of man." This statement means that the whole numbers arose from human experience, not from humanity's fertile imagination. We begin our study of business mathematics with a review of whole number arithmetic because all our work with fractions, decimals, and percent depends on the basic operations with whole numbers.*

### 1.1 Place Value and Rounding of Whole Numbers

We begin our review of arithmetic with a consideration of the set of **counting numbers**, or the set of **whole numbers**,

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, ...

#### Place Value

In our number system, the **digits** 0, 1, 2, 3, 4, 5, 6, 7, 8, and 9 are used in a **place-value system** called the **decimal system**. In a place-value system, a number is given as a string of digits and the position (place) of each digit determines the value of the number. For example, in the number 456, the position of each of the digits, 4, 5, and 6, determines the value of the number as follows:

4	5	6	=	400	+	50	+	6
				4 hundreds				
				5 tens				
				6 ones (or units)				