

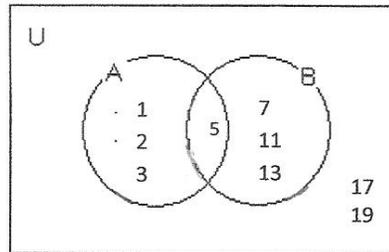
**Chapter 2**

1-4 Given:  $U=\{a,b,c,d,e\}$   $A=\{b,c\}$   $B=\{b,c,e\}$

- 1)  $A \cup B'$                       2)  $A' \cap B'$                       3)  $(A \cap B)'$                       4)  $(A \cup B)'$

5-11 Refer to the Venn diagram.

- 5)  $A \cap B$                       6)  $(A \cap B)'$                       7)  $A \cup B$                       8)  $(A \cup B)'$   
 9)  $A' \cup B$                       10)  $A \cap B'$                       11)  $A'$



**Chapter 6**

Textbook      p. 365-367      #7, 12, 13, 14, 18, 29, 36, 40, 45, 46, 55,      p. 368 #25-27

**Chapter 7**

1-2 Given:  $f(x) = 3x^2+5$  and  $g(x) = 4x+1$

- 1) Find  $f(-3)$       2) Find  $f(g(1))$

3-6 Graph each of the following:

- 3)  $y = |x| - 5$       4)  $y = x^2 + 2$       5)  $3x + 6y \geq 12$       6)  $3x - 2y > 6$

7) Solve this system for x:  
 $x - 5y = 29$   
 $-6x - 6y = 42$

8) The CHS Band sold 250 dinners at a BBQ. A child's plate cost \$3.50 and an adult's plate cost \$7.00. A total of \$1347.50 was collected. How many adult plates were served?

9) Three pizzas and 4 sandwiches cost \$34. Three pizzas and 7 sandwiches cost \$41.50. How much does one sandwich cost?

10) Given  $W(x)=7.289x+40$  models the number of weeds in my backyard as a function of time, where  $x$ = the number of days since Aug.1<sup>st</sup>. a) What is the slope and what does it mean in terms of rate of change? b) What is the y-intercept and what does it mean in this situation?

11) A truck rental company rents a moving truck one day by charging \$39 plus \$0.09 per mile. Write a linear equation that relates the cost  $C$ , in dollars, of renting the truck to the number  $x$  of miles driven. What is the cost of renting the truck if the truck is driven 160 miles?

**12-14 A company that manufactures running shoes has a fixed cost of \$300,000. Additionally, it costs \$30 to produce each pair of shoes. They are sold at \$80 per pair.**

12) Write the cost function,  $C$ , of producing  $x$  pairs of running shoes.

13) Write the revenue function,  $R$ , from the sale of  $x$  pairs of running shoes.

14) Determine the break-even point. Describe what this means.

15) You need to add water to your pool. You start filling the pool and after 2 hours the pool has 12,000 gallons of water. After 6 hours from when you started, there are 15,000 gallons of water in the pool. Assume there is a linear relationship between time and the number of gallons of water in the pool.

- a) Write a linear equation for this function.
- b) What is the y-intercept and what does it mean in this problem?
- c) What is the rate of change and what does it mean in this problem?

**16-17 Solve each problem by using linear programming.**

16) A manufacturer produces two models of mountain bicycles. The times required for assembling are 6 hours for Model A and 4 hours for Model B. The times required for painting are 4 hours for Model A and 8 hours for Model B. The maximum total weekly hours available in the assembly department and the paint department are 240 hours and 320 hours, respectively. The company must make at least 10 Model A bikes in order to satisfy an order they have with HSN. The profits per unit are \$25 for Model A and \$15 for Model B. How many of each type should be produced to maximize profit?

17) A bakery sells cakes for \$12 each and pies for \$15 each. Each cake takes 2 hours to make and each pie takes 3 hours to make. The bakery has at most 18 hours to make cakes and pies. The bakery can make at most 6 cakes per day and at most 4 pies per day. How many cakes and pies should the bakery make in order to maximize their profit?

**Chapter 8**

- 1) You purchase a bicycle with a retail (pre-tax) price of \$340. The local sales tax rate is 7.8%. What is the final cost?
- 2) Your dinner bill is \$37.98. You leave a 15% tip. How much is the total bill? (Ignore taxes in this question)
- 3) My real estate agent told me that my house had appreciated in value over the last three years. In other words, it has gone from being worth \$202,500 to being worth \$267,000. What is the percent increase in the value of my house?
- 4) Savannah's monthly gross pay is \$923. If she pays 22% in taxes, what is her net pay (take-home)?
- 5) Cesar's receipt shows that he paid \$65.34 for a new jacket including sales tax. The sale tax rate is 8.9%. How much did the jacket cost before tax? How much did he pay in tax?
- 6) If you receive \$12,000 today and can invest it at a 6% annual rate compounded continuously, what would be your ending value after 18 years?
- 7) You deposit \$2600 in an account with an annual interest rate of 3.65%. Calculate the amount of money you will have in that account after five years, assuming that you earn simple interest.
- 8) You take out a 6-year loan for \$15,000. If your monthly payment is \$263, how much total interest will you pay over the 6 years?
- 9) Compute the balance in the account where \$32,000 is invested for 30 years with an interest rate of 4.9% with quarterly compounding.
- 10) Find the effective annual yield of an account that pays an interest rate of 6.55% compounded daily.
- 11) Compute the balance in the following account: A \$14,400 deposit with an interest rate of 9% compounded continuously for 3 years.
- 12) How much must you deposit today into the following account in order to have \$39,000 in 14 years? The account has monthly compounding and an interest rate of 7.2%. Assume no additional deposits are made.
- 13) How much must you deposit today into an account with an interest rate of 5%, compounded daily in order to have a \$150,000 college fund in 18 years? (Use 365 days in a year.)
- 14) Find the savings plan balance after 4 years with an interest rate of 4.85% and monthly payments of \$175. Assume monthly deposits and monthly compounding.
- 15) You put \$490 per month in an investment plan that pays an interest rate of 4.8%. How much money will you have after 18 years? Compare this amount to the total deposits made over the time period.
- 16) You want to purchase a new car in 2 years and expect the car to cost \$12,500. Your bank offers a plan with a guaranteed interest rate of 4.7% if you make regular monthly deposits. How much should you deposit each month to end up with \$12,500 in 2 years?

- 17) At age 30 Sonia starts an IRA that pays 6% compounded monthly to save for retirement. She deposits \$100 at the end of each month.
- How much will she have when she retires at age 65?
  - Find the total amount of interest earned.
- 18) You want to build a \$100,000 college fund in 18 years by making regular deposits at the end of every month. You have found an annuity that pays 4.5% compounded monthly. Determine the amount of your monthly deposit.
- 19) Express  $\frac{1}{40}$  as a percent. 20) Express .15 as a percent. 21) Express  $6\frac{3}{4}\%$  as a decimal.

### Income Taxes

**Find the gross income, adjusted gross income and taxable income in the following situations:**

- Sandra is single, earned wages of \$ 33,570, received \$415 in interest from a savings account, and contributed \$2,300 to a tax deferred retirement plan. She is entitled to a personal exemption and had deductions totaling \$4,250.
- Malcolm is head of household with 1 dependent, earned wages of \$29,300, received \$67 in interest from a savings account, and will claim standard deduction.

**Decide whether you should itemize your deductions or take the standard deduction:**

- Your deductible expenditures are \$7,100 from interest on a home mortgage, \$1,900 for contributions to charity, and \$602 for state income taxes. Your filing status entitles you to a standard deduction of \$11,900
- You are married and filing separate. Your deductible expenditures are \$5,070 for contributions to charity, and \$923 for state income taxes.

**Compute the gross income, adjusted gross income, and taxable income. Use the exemptions and deductions allowed in 2012. Explain how you decided whether to itemize or use standard deduction:**

- Spencer is single and earned wages of \$43,000. He had \$3,150 in itemized deductions from interest on a mortgage.
- Christina and Oscar are married and filed jointly. Their combined wages were \$95,300. They earned \$7,750 from a rental property they own, and they received \$813 in interest from their savings account. They claim five exemptions for themselves and three children. They contributed \$13,850 to their tax-deferred retirement plans, and their itemized deductions totaled \$12,550.
- Angel is married but filed separate. His wages totaled \$55,230, received \$433 in interest from a savings account. He is entitled to a personal exemption and his itemized deductions totaled \$5,150.

**Use the 2012 Marginal Tax Rate Table**

**a) Find the tax bracket for each person (%)**

**b) Find the amount of tax each person owes.**

- Joseph is single with no dependents and had a taxable income of \$ 55,600
- Anna is married and filing separately. Her adjusted gross income is \$43,200. Her itemized deductions totaled \$3,675.
- Kathryn is head of household and a taxable income of \$66,300.

## Chapter 9

- 1) One square mile contains 640 acres. How many square feet are there in an acre?
- 2) How much would it cost to carpet a room that measures 10 feet by 12 feet if the carpet costs \$25.49 per square yard? (Round to the nearest whole number)
- 3) Change 21,600 minutes to days
- 4) How many inches in 45.6 cm?
- 5) What is the volume of a book in cubic inches if its width is 10 cm, the length is 2 times the width, and the height is half the width? (Round to nearest whole number)
- 6) Steak sells for \$7.59 euros per kilogram in France. How much it is in U.S. dollars per pound?
- 7) Convert  $105^{\circ}$  F to degrees Celsius.
- 8) Brianna plans to take a 1730 mile long trip in her car. Her car gets 27 miles per gallon. If gas costs \$3.29 per gallon, how much will she need to spend in gas?
- 9) Many Mexican highways have a speed limit of 80 kilometers per hour. Convert this to miles per hour.
- 10) You are preparing a vegetable garden that is 35 feet long and 15 feet wide, and you need enough soil to fill it to a depth of 1 foot. The Home Depot sells soil by the cubic yard. How much soil should you order?
- 11) In 1996, Randy Barnes of the United States won the 16-pound shot put with a distance of 21.62 meters. How far is this in inches? What is the weight of the shot put in kilograms?
- 12) Convert 8 yards to centimeters.
- 13) If tile cost \$1.90 per square foot, then how much would it cost to tile a floor that is 240 inches by 120 inches?
- 14) What is the weight in tons of a 3500 pound pick-up truck?
- 15) How many pints does a 20 gallon bucket of paint hold?
- 16) Convert 7000 milligrams to grams
- 17) Convert 16 miles per hour to feet per second
- 18) Convert  $325^{\circ}$  Kelvin to Celsius
- 19) Convert  $45^{\circ}$  Celsius to Fahrenheit