

1.10 Exercises

FOR
EXTRA
HELP



≈ Solve each application problem. First use front end rounding to estimate the answer. Then find the exact answer. See Examples 1–4.

1. The billing department at Radio Flyer, Inc. sent out 80 invoices on Monday, 75 invoices on Tuesday, 135 invoices on Wednesday, 40 invoices on Thursday, and 52 invoices on Friday. How many invoices were sent out in this 5-day period?

Estimate:

Exact:

The graph shows the average credit card debt for college students by grade level.

3. On average how much more does a junior owe on credit card debt than a sophomore?

Estimate:

Exact:

4. How much more does a senior owe on credit card debt than a freshman on average?

Estimate:

Exact:

5. A packing machine can package 236 first-aid kits each hour. At this rate, find the number of first-aid kits packaged in 24 hours.

Estimate:

Exact:

7. Ted Slauson, coordinator of Toys for Tots, has collected 2628 toys. If his group can give the same number of toys to each of 657 children, how many toys will each child receive?

Estimate:

Exact:

9. The number of boaters and campers at the lake was 8392 on Friday. If this was 4218 more than the number of people at the lake on Wednesday, how many were there on Wednesday?

Estimate:

Exact:

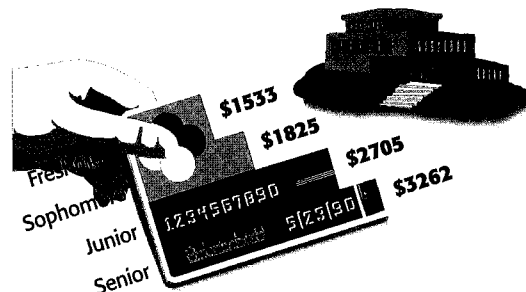
2. During a recent week, Radio Flyer, Inc. manufactured 32,815 Model #18 wagons, 4875 steel mini-wagons, 1975 wood 40-inch wagons, 15,308 scooters, and 9815 new-design plastic wagons. Find the total number of units manufactured.

Estimate:

Exact:

STUDENTS IN CHARGE

The percentage of college students using credit cards increased from 67% in 1998 to 83% in 2001. Average credit card debt, by grade level:



Source: Nellie Mae.

6. If 450 admission tickets to a classic car show are sold each day, how many tickets are sold in a 12-day period?

Estimate:

Exact:

8. If profits of \$680,000 are divided evenly among a firm's 1000 employees, how much money will each employee receive?

Estimate:

Exact:

10. The community has raised \$52,882 for the homeless shelter. If the total amount needed for the shelter is \$75,650, find the additional amount needed.

Estimate:

Exact:

11. Turn down the thermostat in the winter and you can save money and energy. In the upper Midwest, setting back the thermostat from 68° to 55° at night can save \$34 per month on fuel. Find the amount of money saved in five months.

Estimate:

Exact:

12. The cost of tuition and fees at a community college is \$785 per quarter. If Gale Klein has five quarters remaining, find the total amount that she will need for tuition and fees.

Estimate:

Exact:

≈ The table shows the average starting salaries for selected occupations. Refer to the table to answer Exercises 13–16. First use front end rounding to estimate the answer. Then find the exact answer.

13. How much more does an executive chef earn than a jet mechanic?

Estimate:

Exact:

14. How much more does a physical therapist earn than a social worker?

Estimate:

Exact:

15. Mr. Garrett is an accountant and Mrs. Garrett is a librarian. Mr. Harcos is a social worker and Mrs. Harcos is a physical therapist.

(a) Which couple has higher earnings?

Estimate:

Exact:

(b) Find the difference in the earnings.

Estimate:

Exact:

17. Carolyn Phelps decides to establish a budget. She will spend \$695 for rent, \$340 for food, \$435 for child care, \$240 for transportation, \$180 for other expenses, and she will put the remainder in savings. If her monthly take-home pay is \$2240, find her monthly savings.

Estimate:

Exact:

16. Mr. Gonzalez is a paralegal and Mrs. Gonzalez is a realtor. Mr. Horton is a firefighter and Mrs. Horton is a jet pilot.

(a) Which couple has higher earnings?

Estimate:

Exact:

(b) Find the difference in the earnings.

Estimate:

Exact:

18. Jared Ueda had \$2874 in his checking account. He wrote checks for \$308 for auto repairs, \$580 for child support, and \$778 for an insurance payment. Find the amount remaining in his account.

Estimate:

Exact:

FIRST PAYCHECKS

Typical annual starting salaries for different occupations.

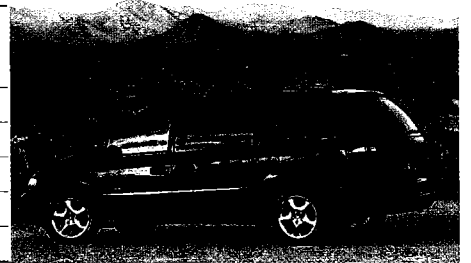
Jet pilot	\$82,400
Executive chef	\$54,300
Physical therapist	\$49,900
Jet mechanic	\$45,000
Paralegal	\$38,600
Librarian	\$35,200
Social worker	\$33,000
Accountant	\$32,800
Realtor	\$29,000
Firefighter	\$25,500

Source: U.S. Department of Labor, Bureau of Labor Statistics.

19. There are 43,560 square feet in one acre. How many square feet are there in 138 acres?
Estimate:
Exact:
20. The number of gallons of water polluted each day in an industrial area is 209,670. How many gallons of water are polluted each year? (Use a 365-day year.)
Estimate:
Exact:

≈ The Internet was used to find the following minivan optional features and the price of each feature. Use this information to answer Exercises 21–24.

Safety and Security Options		Convenience and Comfort Options	
Option	Cost	Option	Cost
Bench seat with two child seats	\$225	Power sliding door	\$400
Supplemental side air bags	\$390	8-way power seat	\$370
Antilock brakes	\$565	Roof rack	\$250
Rear-window defroster	\$195	Power door locks	\$315
Power adjustable pedal	\$185	Keyless entry	\$150
Full-size spare tire	\$160	AM/FM cassette and CD	\$225



Source: www.edmunds.com

21. Find the total cost of all Safety and Security Options listed.
Estimate:
Exact:
22. Find the total cost of all Convenience and Comfort Options listed.
Estimate:
Exact:
23. A new-car dealer offers an option value package that includes a bench seat with two child seats, anti-lock brakes, keyless entry, and a power sliding door at a cost of \$1220. If Jill buys the value package instead of paying for each option separately, how much will she save?
Estimate:
Exact:
24. A new-car dealer offers an option package that includes a bench seat with two child seats, anti-lock brakes, full-size spare tire, power door locks, 8-way power seat, and a roof rack for a total of \$1750. How much will Samuel save if he buys the option package instead of paying for each option separately?
Estimate:
Exact:
25. The Enabling Supply House purchased 6 wheelchairs at \$1256 each and 15 speech compression recorder-players at \$895 each. Find the total cost.
Estimate:
Exact:
26. A college bookstore buys 17 desktop computers at \$506 each and 13 printers at \$482 each. Find the total cost.
Estimate:
Exact:
27. Being able to identify indicator words is helpful in determining how to solve an application problem. Write three indicator words for each of these operations: add, subtract, multiply, and divide. Write two indicator words that mean equals.
28. Identify and explain the six steps used to solve an application problem. You may refer to the text if you need help, but use your own words.

29. Write in your own words why it is important to estimate a reasonable answer. Give three examples of what might be a reasonable answer to a math problem from your daily activities.

30. First estimate by rounding to thousands, then find the exact answer to the following problem.

$$7438 + 6493 + 2380$$

Do the two answers vary by more than 1000? Why? Will estimated answers always vary from exact answers?

Estimate:

Exact:

Solve each application problem. See Examples 1–4.

31. A package of 3 undershirts costs \$12, and a package of 6 pairs of socks costs \$15. Find the total cost of 30 undershirts and 18 pairs of socks.
32. Mark earned \$11 per hour for 36 hours of work. Maria earned \$13 per hour for 38 hours of work. Find their total combined income.
33. A car weighs 2425 pounds. If its 582-pound engine is removed and replaced with a 634-pound engine, what will the car weigh?
34. Barbara has \$2324 in her preschool operating account. She spends \$734 from this account, and then the class parents raise \$568 in a rummage sale. Find the balance in the account after she deposits the money from the rummage sale.
35. In a recent survey of Reno/Lake Tahoe hotels, the cost per night at Harrah's in Reno was \$59, while the cost at Harrah's in Lake Tahoe was \$159 per night. Find the amount saved on a 5-night stay at Harrah's in Reno instead of staying at Harrah's in Lake Tahoe. (*Source:* Harrah's Casinos and Hotels, weekday rates.)
36. The most expensive hotel room in a recent study was the Ritz-Carlton at \$495 per night, while the least expensive was Motel 6 at \$66 per night. Find the amount saved in a 4-night stay at Motel 6 instead of staying at the Ritz-Carlton. (*Source:* Ritz-Carlton/Motel 6.)
37. A youth soccer association raised \$7588 through fund-raising projects. After expenses of \$838 were paid, the balance of the money was divided evenly among the 18 teams. How much did each team receive?
38. Feather Farms Egg Ranch collected 3545 eggs in the morning and 2575 eggs in the afternoon. If the eggs are packed in flats containing 30 eggs each, find the number of flats needed for packing.
39. A theater owner wants to provide enough setting for 1250 people. The main floor has 30 rows of 25 seats in each row. If the balcony has 25 rows, how many seats must be in each balcony row to satisfy the owner's seating requirements?
40. Jennie makes 24 grapevine wreaths per week to sell to gift shops. She works 40 weeks a year and packages six wreaths per box. If she ships equal quantities to each of five shops, find the number of boxes each store will receive.