SECTION

3 Decimals

These 10 sets of problems will familiarize you with arithmetic operations involving decimals (which are a really special kind of fraction). You use decimals every day, in dealing with money, for example. Units of measurement, such as populations, kilometers, inches, or miles, are also often expressed in decimals. In this section you will get practice in working with *mixed decimals*, or numbers that have digits on both sides of a decimal point, and the important tool of *rounding,* the method for estimating decimals.

▶ Set 21 (Answers begin on page 177.)

321. 56.73647 rounded to the nearest hundredth is equal to
- **a.** 100
- **b.** 57
- **c.** 56.7
- **d.** 56.74

322. Which number sentence is true?
- **a.** $0.43 < 0.043$
- **b.** $0.0043 > 0.43$
- **c.** $0.00043 > 0.043$
- **d.** $0.043 > 0.0043$

323. $78.09 + 19.367 =$
- **a.** 58.723
- **b.** 87.357
- **c.** 97.457
- **d.** 271.76

324. $3.419 - 0.7 =$
- **a.** 34.12
- **b.** 0.2719
- **c.** 2.719
- **d.** 0.3412

325. $2.9 \div 0.8758 =$
- **a.** 3.31
- **b.** 0.331
- **c.** 0.302
- **d.** 0.0302

326. $195.6 \div 7.2$, rounded to the nearest hundredth, is equal to
- **a.** 271.67
- **b.** 27.17
- **c.** 27.16
- **d.** 2.717

327. $515 - 4.2 =$
- **a.** 51.08
- **b.** 5.108
- **c.** 510.8
- **d.** 5,108

328. $7.14 \times 7 =$
- **a.** 49.98
- **b.** 499.8
- **c.** 4.98
- **d.** 49

329. $9.3 - 8.132 =$
- **a.** 1,168
- **b.** 1.168
- **c.** 11.68
- **d.** 1.68

330. $824 \times 0.18 =$
- **a.** 0.14832
- **b.** 148.32
- **c.** 14.832
- **d.** 14,832

331. $0.34 \times 0.56 =$
- **a.** 19.04
- **b.** 1.904
- **c.** 0.194
- **d.** 0.1904

332. What is five and four hundredths written as a decimal?
- **a.** 0.54
- **b.** 0.054
- **c.** 5.4
- **d.** 5.04

333. In the following decimal, which digit is in the hundredths place: 0.2153

a. 2
b. 1
c. 5
d. 3

334. What is 0.2275 rounded to the nearest tenth?

a. 0.2
b. 0.3
c. 0.22
d. 0.5

335. Which of these has an 8 in the thousandths place?

a. 1.68
b. 1.0068
c. 1.0086
d. 1.8006

336. $6.75 \div 6.25 =$

a. 1
b. 1.08
c. 1.8
d. 12

▶ Set 22 (Answers begin on page 177.)

337. $0.321 + 6.5 + 64 =$

a. 70.821
b. 391.5
c. 1.611
d. 708.21

338. $0.42 \times 0.09 =$

a. 3.78
b. 37.8
c. 0.0378
d. 0.378

339. $134.81 \div 34 =$

a. 3.965
b. 0.3965
c. 39.65
d. 3.0965

340. $26.907 + 234.76 =$

a. 0.26167
b. 261.667
c. 26.1667
d. 2,616.67

341. $0.0224 + 0.0569 =$

a. 0.0793
b. 0.793
c. 0.7
d. 0.739

342. $4.2 - 2.37 =$

a. 2.37
b. 1.95
c. 6.57
d. 1.83

343. What is another way to write 4.32×100^2?

a. 432
b. 4,320
c. 43,200
d. 432,000

344. $0.476 \div 7 =$

a. 6.8
b. 0.68
c. 0.068
d. 0.0068

345. $489.05 \times 0.25 =$

a. 0.12625
b. 12,625
c. 1,222.625
d. 122.2625

346. What is another way to write 7.25×10^3?

a. 72.5
b. 725
c. 7,250
d. 72,500

347. $(4.1 \times 10^{-2})(3.8 \times 10^4) =$

a. 1.558×10^{-8}
b. 15.58×10^{-2}
c. 1.558×10^2
d. 1.558×10^3

348. $\frac{6.5 \times 10^{-6}}{3.25 \times 10^{-3}} =$

a. 2×10^{-9}
b. 2×10^{-3}
c. 2×10^2
d. 2×10^3

349. What is the product of 16 and 0.023?

a. 0.368
b. 0.0368
c. 3.68
d. 0.36

350. 0.75 + 0.518 =

a. 12.68
b. 0.01268
c. 0.1268
d. 1.268

351. Which of the following numbers is NOT between −0.06 and 1.06?

a. 0
b. 0.06
c. −0.16
d. −0.016

▶ Set 23 (Answers begin on page 178.)

352. Which of the following is the word form of the decimal 0.08?
- **a.** eight hundredths
- **b.** eight tenths
- **c.** eight thousandths
- **d.** eight ten-thousandths

353. Which of the following decimals has the greatest value?
- **a.** 8.241
- **b.** 8.0241
- **c.** 8.2
- **d.** 8.2041

354. Which of the following decimals has the least value?
- **a.** 0.97
- **b.** 0.0907
- **c.** 0.097
- **d.** 0.0097

355. What is 43.0089 rounded to the nearest hundredth?
- **a.** 43.008
- **b.** 43.01
- **c.** 43.008
- **d.** 43.1

356. What is the sum of 13.008 + 52 + 0.69 rounded to the nearest tenth?
- **a.** 65
- **b.** 65.7
- **c.** 65.077
- **d.** 65.07

357. 18.7772 + 23 + 0.8789 =
- **a.** 42.6561
- **b.** 42.0656
- **c.** 43.6165
- **d.** 43.6561

358. 4 – 0.93 – 0.2 =
- **a.** 2.0087
- **b.** 28.7
- **c.** 2.87
- **d.** 2.087

359. Yuri and Catherine begin driving at the same time but in opposite directions. If Yuri drives 60 miles per hour, and Catherine drives 70 miles per hour, approximately how long will it be before they are 325.75 miles apart?
- **a.** 2 hours
- **b.** 2.25 hours
- **c.** 2.5 hours
- **d.** 2.75 hours

360. A garden store offers $0.75 off all pumpkins after Halloween. If a certain pumpkin is priced at $3.20 after Halloween, what was the original price?
- **a.** $2.45
- **b.** $3.75
- **c.** $3.95
- **d.** $4.05

361. A bottle of apple juice contains 1.42 liters; a bottle of grape juice contains 1.89 liters. How many total liters of juice are there in the two bottles?
- **a.** 0.47 liters
- **b.** 2.31 liters
- **c.** 3.21 liters
- **d.** 3.31 liters

362. Over the last few years, the average number of dogs in the neighborhood has dropped from 17.8 to 14.33. What is the decrease in the number of dogs in the neighborhood?

a. 3.47
b. 2.66
c. 3.15
d. 2.75

363. On Monday, Freida slept 6.45 hours; on Tuesday, 7.32; on Wednesday, 5.1; on Thursday, 6.7; and on Friday, she slept 8.9 hours. How many hours of sleep did she get over the five days?

a. 40.34 hours
b. 34.47 hours
c. 36.78 hours
d. 42.67 hours

364. Last week, Felicity had $67.98 saved from babysitting. She made another $15.75 babysitting this week and spent $27.58 on CDs. How much money does she have now?

a. $71.55
b. $24.65
c. $111.31
d. $56.15

365. Roommates Bob and Ted agreed to wallpaper and carpet the living room and replace the sofa. The wallpaper costs $103.84, the carpet costs $598.15, and the new sofa costs $768.56. Bob agrees to pay for the carpet and wallpaper, and Ted agrees to pay for the sofa. How much more money will Ted spend than Bob?

a. $68.56
b. $76.55
c. $66.57
d. $72.19

366. Reams of copy paper cost $11.39 for five cases. How much would 100 cases cost?

a. $56.95
b. $227.80
c. $1,139.00
d. $68.34

367. A bartender earned a total of $87 in tips over six days. What is the average amount of total tips earned per day?

a. $15.50
b. $14.00
c. $14.50
d. $15.00

368. Eight coworkers decide to split a dinner bill evenly, including tip. Each coworker paid $23.65. What was the total cost of the bill, including tip?

a. $188.25
b. $189.20
c. $189.00
d. $188.65

▶ Set 24 (Answers begin on page 179.)

369. Samuel paid $5.96 for four pounds of cookies. How much do the cookies cost per pound?

a. $1.96
b. $2.33
c. $1.49
d. $2.15

370. One inch equals 2.54 centimeters. How many centimeters are there in a foot?

a. 30.48 centimeters
b. 32.08 centimeters
c. 31.79 centimeters
d. 29.15 centimeters

371. Melinda and Joaquin can restock an aisle at the supermarket in one hour working together. Melinda can restock an aisle in 1.5 hours working alone, and it takes Joaquin two hours to restock an aisle. If they work together for two hours, and then work separately for another two hours, how many aisles will they have completed?

a. 5
b. 4.5
c. 4.33
d. 3.5

372. Patrick earns only $\frac{1}{3}$ of what Robin does. If Robin makes $21 per hour, how much does Patrick earn in a typical eight-hour workday?

a. $56
b. $112
c. $168
d. $7

373. Reva earns $10 an hour for walking the neighbor's dog. Today she can walk the dog for only 45 minutes. How much will Reva make today?

a. $6.25
b. $7.50
c. $7.75
d. $8.00

374. A greyhound, Zelda, can run 35.25 miles an hour, while a cat, Spot, can run only $\frac{1}{4}$ that fast. How many miles per hour can Spot run?

a. 8.25 miles per hour
b. 8.77 miles per hour
c. 8.81 miles per hour
d. 9.11 miles per hour

375. A 600-page book is 1.5 inches thick. What is the thickness of each page?

a. 0.0010 inch
b. 0.0030 inch
c. 0.0025 inch
d. 0.0600 inch

376. Michael walks to school. He leaves each morning at 7:32 A.M. and arrives at school 15 minutes later. If he travels at a steady rate of 4.5 miles per hour, what is the distance between his home and the school? (*Distance* = *rate* × *time*)

a. 1.1 miles
b. 1.125 miles
c. 1.5 miles
d. 2.5 miles

377. For every dollar Kyra saves, her employer contributes a dime to her savings, with a maximum employer contribution of $10 per month. If Kyra saves $60 in January, $130 in March, and $70 in April, how much will she have in savings at the end of that time?

a. $270
b. $283
c. $286
d. $290

378. Quentin was shopping for a new washing machine. The one he wanted to buy cost $428.98. The salesperson informed him that the same machine would be on sale the following week for $399.99. How much money would Quentin save by waiting until the washing machine went on sale?

a. $28.99
b. $29.01
c. $39.09
d. $128.99

379. If a bus weighs 2.5 tons, how many pounds does it weigh? (one ton = 2,000 pounds)

a. 800 pounds
b. 4,500 pounds
c. 5,000 pounds
d. 5,500 pounds

380. If Serena burns about 304.15 calories while walking fast on her treadmill for 38.5 minutes, about how many calories does she burn per minute?

a. 7.8
b. 7.09
c. 7.9
d. 8.02

381. A truck is carrying 1,000 television sets; each set weighs 21.48 pounds. What is the total weight, in pounds, of the entire load?

a. 214.8 pounds
b. 2,148 pounds
c. 21,480 pounds
d. 214,800 pounds

382. Luis is mailing two packages. One weighs 12.9 pounds, and the other weighs half as much. What is the total weight, in pounds, of the two packages?

a. 6.45 pounds
b. 12.8 pounds
c. 18.5 pounds
d. 19.35 pounds

383. If it takes Danielle 22.4 minutes to walk 1.25 miles, how many minutes will it take her to walk one mile?

a. 17.92 minutes
b. 18 minutes
c. 19.9 minutes
d. 21.15 minutes

384. Mark's temperature at 9:00 A.M. was 97.2° F. At 4:00 P.M., his temperature was 99° F. By how many degrees did his temperature rise?

a. 0.8°
b. 1.8°
c. 2.2°
d. 2.8°

▶ Set 25 (Answers begin on page 180.)

385. Jason had $40 in his wallet. He bought gasoline for $12.90, a pack of gum for $0.45, and a candy bar for $0.88. How much money did he have left?

a. $14.23
b. $25.77
c. $25.67
d. $26.77

386. The price of cheddar cheese is $2.12 per pound. The price of Monterey Jack cheese is $2.34 per pound. If Harrison buys 1.5 pounds of cheddar and one pound of Monterey Jack, how much will he spend in all?

a. $3.18
b. $4.46
c. $5.41
d. $5.52

387. From a 100-foot ball of string, Randy cuts three pieces of the following lengths: 5.8 feet, 3.2 feet, and 4.4 feet. How many feet of string are left?

a. 66.0 feet
b. 86.6 feet
c. 87.6 feet
d. 97.6 feet

388. Fifteen-ounce cans of clam chowder sell at three for $2. How much does one can cost, rounded to the nearest cent?

a. $0.60
b. $0.66
c. $0.67
d. $0.70

389. For the month of July, Victoria purchased the following amounts of gasoline for her car: 9.4 gallons, 18.9 gallons, and 22.7 gallons. How many gallons did she purchase in all?

a. 51 gallons
b. 51.9 gallons
c. 52 gallons
d. 61 gallons

390. Manny works Monday through Friday each week. His bus fare to and from work is $1.10 each way. How much does Manny spend on bus fare each week?

a. $10.10
b. $11.00
c. $11.10
d. $11.20

391. If one centimeter equals 0.39 inches, about how many centimeters are there in 0.75 inches?

a. 0.2925 centimeter
b. 1.923 centimeters
c. 0.52 centimeter
d. 1.75 centimeters

392. 5.133 multipled by 10^{-6} is equal to

a. 0.0005133
b. 0.00005133
c. 0.000005133
d. 0.0000005133

393. On a business trip, Felicia went out to lunch. The shrimp cocktail cost $5.95, the blackened swordfish with grilled vegetables cost $11.70, the cherry cheesecake cost $4.79, and the coffee was $1.52. What was Felicia's total bill not including tax and tip?

a. $23.96
b. $26.93
c. $29.63
d. $32.99

394. Hal wants to buy a used car to take to college. The car costs $4,999.95. For graduation, he receives gifts of $200.00, $157.75, and $80.50. His little brother gave him $1.73, and he saved $4,332.58 from his summer job. How much more money does he need?

a. $272.93
b. $227.39
c. $722.93
d. $772.39

395. A football team must move the ball 10 yards in four plays in order to keep possession of the ball. The home team has just run a play in which they gained 2.75 yards. How many yards remain in order to keep possession of the ball?

a. 6.50 yards
b. 6.75 yards
c. 7.25 yards
d. 8.25 yards

396. Heather wants to build a deck that is 8.245 feet by 9.2 feet. How many square feet will the deck be? (*Area* = *length* × *width*)

a. 34.9280 square feet
b. 82.4520 square feet
c. 17.4450 square feet
d. 75.8540 square feet

397. Rene's car used 23.92 gallons of fuel on a 517.6-mile trip. How many miles per gallon did the car get, rounded to the nearest hundredth?

a. 18.46 miles per gallon
b. 21.64 miles per gallon
c. 26.14 miles per gallon
d. 29.61 miles per gallon

398. Faron ran a 200-meter race in 23.7 seconds. Gene ran it in 22.59 seconds. How many fewer seconds did it take Gene than Faron?

a. 2.17 seconds
b. 0.97 second
c. 1.01 seconds
d. 1.11 seconds

399. Mabel buys 2.756 pounds of sliced turkey, 3.2 pounds of roast beef, and 5.59 pounds of bologna. Approximately how many total pounds of meat did Mabel buy?

a. 11.5 pounds
b. 12.75 pounds
c. 10.03 pounds
d. 13.4 pounds

400. Kathleen types about 41.46 words per minute. At this rate, about how many words will she type in eight minutes?

a. 5.18
b. 33.46
c. 330.88
d. 331.68

▶ Set 26 (Answers begin on page 180.)

401. Ingrid has 7.5 pounds of candy for trick-or-treaters. She gives a vampire 0.25 pounds, a fairy princess 0.53 pounds, and a horse 1.16 pounds. She eats 0.12 pounds. How much candy is left?

a. 5.44 pounds
b. 4.55 pounds
c. 5.3 pounds
d. 4.7 pounds

402. Ophelia drives from home to the grocery store, which is 6.2 miles. Then she goes to the video store, which is 3.4 more miles. Next, she goes to the bakery, which is 0.82 more miles. Then she drives the 5.9 miles home. How many miles total did she drive?

a. 12.91 miles
b. 13.6 miles
c. 16.32 miles
d. 18.7 miles

403. Ken wants to make slip covers for his dining room chairs. Each chair requires 4.75 yards of fabric. Ken has 20.34 yards of fabric. How many chairs can he cover?

a. 3
b. 4
c. 5
d. 6

404. On Monday, Luna had $792.78 in her checking account. On Tuesday, she deposited her $1,252.60 paycheck. On Wednesday, she paid her rent, $650. On Thursday, she paid her electric, cable, and phone bills, which were $79.35, $54.23, and $109.56, respectively. How much money is left in Luna's account?

a. $965.73
b. $1,348.90
c. $893.14
d. $1,152.24

405. Mya has a rectangular frame with an opening that is 11.25 inches by 8.75 inches. What is the area, rounded to the nearest hundredth, of the opening?

a. 20 square inches
b. 92.81 square inches
c. 97.43 square inches
d. 98.44 square inches

406. Michael's favorite cake recipe calls for 0.75 pounds of flour; he has a five-pound bag. He wants to make several cakes for the school bake sale. How many cakes can he make?

a. 5
b. 6
c. 7
d. 8

407. Hannah walks to work every day, sometimes running errands on the way. On Monday, she walked 0.75 mile; Tuesday, 1.2 miles; Wednesday, 1.68 miles; Thursday, 0.75 mile; and on Friday, she rode with Earl. On the days she walked, what was the average distance Hannah walked each day?

a. 2.78 miles
b. 1.231 miles
c. 0.75 mile
d. 1.095 miles

408. Seven people are at the beach for a clambake. They have dug 12.6 pounds of clams. They each eat the following amounts of clams: 0.34 pound, 1.6 pounds, 0.7 pound, 1.265 pounds, 0.83 pound, 1.43 pounds, 0.49 pound. How many pounds of clams are left?

a. 7.892 pounds
b. 4.56 pounds
c. 5.945 pounds
d. 6.655 pounds

409. A certain professional baseball player makes $2.4 million a year. A certain professional football player makes $1.025 million a year. How much less per year is the football player making than the baseball player?

a. $1.375 million
b. $1.15 million
c. $1.46 million
d. $2.46 million

410. A carpet costs $2.89 per square foot. How much carpet, rounded to the nearest square foot, could be bought with $76?

a. 25 square feet
b. 26 square feet
c. 27 square feet
d. 38 square feet

411. Philip has worked 34.75 hours of his usual 39.5-hour week. How many hours does he have left to work?

a. 5.25 hours
b. 4.75 hours
c. 4.00 hours
d. 3.75 hours

412. Gail has to water a 0.25-acre garden on Monday, a 1.02-acre garden on Tuesday, and a 0.36-acre garden on Wednesday. How many acres total does she have to water in the three days?

a. 1.63 acres
b. 1.53 acres
c. 1.38 acres
d. 1.27 acres

413. Lilly is going to recarpet her living room. The dimensions of the room are 15.6 feet by 27.75 feet. How many square feet of carpet will she need?

a. 315.8 square feet
b. 409.5 square feet
c. 329.25 square feet
d. 432.9 square feet

414. A movie is scheduled for two hours. The theater advertisements are 3.8 minutes long. There are two previews; one is 4.6 minutes long, and the other is 2.9 minutes long. The rest of time is devoted to the feature. How long is the feature film?

a. 108.7 minutes
b. 97.5 minutes
c. 118.98 minutes
d. 94.321 minutes

415. Tommy is making hats for the kids in the neighborhood. He needs 0.65 yard of fabric for each hat; he has 10 yards of fabric. How many hats can he make?

a. 13
b. 14
c. 15
d. 16

416. Over the weekend, Maggie watched 11.78 hours of television, Jenny watched 6.9 hours, Chas watched 7 hours, and Manny watched 2.45 hours. How much television did they watch over the weekend?

a. 26.786 hours
b. 28.13 hours
c. 30.79 hours
d. 32.85 hours

▶ Set 27 (Answers begin on page 181.)

417. Carol wants to enclose a rectangular area in her backyard for her children's swing set. This section of the yard measures 16.25 feet by 20.25 feet. How many feet of fencing will she need to enclose this section?

a. 36.5 feet
b. 52.75 feet
c. 73 feet
d. 329.06 feet

418. In the new television season, an average of 7.9 million people watched one network; an average of 8.6 million people watched another. How many more viewers did the second network average than the first?

a. 0.5 million
b. 0.6 million
c. 0.7 million
d. 0.8 million

419. A writer makes $1.13 per book sold. How much will she make when 100 books have been sold?

a. $11.30
b. $113.00
c. $1,130.00
d. $11,300.00

420. Fred walks 0.75 mile to school; Ramona walks 1.3 miles; Xena walks 2.8 miles; and Paul walks 0.54 mile. What is the total distance the four walk to school?

a. 4.13 miles
b. 5.63 miles
c. 4.78 miles
d. 5.39 miles

421. Jane is driving 46.75 miles per hour. How far will she go in 15 minutes?

a. 14.78 miles
b. 11.6875 miles
c. 12.543 miles
d. 10.7865 miles

422. After stopping at a rest stop, Jane continues to drive at 46.75 miles per hour. How far will she go in 3.80 hours?

a. 177.65 miles
b. 213.46 miles
c. 143.78 miles
d. 222.98 miles

423. Bob notices that the ratio of boys to the total students in his class is 3:4. If there are 28 students in his class, how many of them are boys?

a. 7
b. 14
c. 21
d. 24

424. District C spends about $4,446.00 on diesel fuel each week. If the cost of diesel fuel to the district is about $1.17 per gallon, about how many gallons of diesel fuel does the district use in one week?

a. 3,800 gallons
b. 3,810 gallons
c. 3,972 gallons
d. 5,202 gallons

425. If one inch equals 2.54 centimeters, how many inches are there in 20.32 centimeters?

a. 7.2 inches
b. 8 inches
c. 9 inches
d. 10.2 inches

426. Kendra earns $12.50 an hour. When she works more than eight hours in one day, she earns $1\frac{1}{2}$ times her regular hourly wage. If she earns $137.50 for one day's work, how many hours did she work that day?

a. 8.5 hours
b. 9 hours
c. 10 hours
d. 11 hours

427. If a car travels at a speed of 62 miles per hour for 15 minutes, how far will it travel? (*Distance* = *rate* × *time*)

a. 9.3 miles
b. 15.5 miles
c. 16 miles
d. 24.8 miles

428. If the speed of light is 3.00×10^8 meters per second, how far would a beam of light travel in 2,000 seconds?

a. 1.50×10^5 meters
b. 6.00×10^5 meters
c. 1.50×10^{11} meters
d. 6.00×10^{11} meters

429. Which of the following rope lengths is longest? (one centimeter = 0.39 inches)

a. 1 meter
b. 1 yard
c. 32 inches
d. 85 centimeters

430. If Katie's cat weighs 8.5 pounds, what is the approximate weight of the cat in kilograms? (one kilogram = about 2.2 pounds)

a. 2.9 kilograms
b. 3.9 kilograms
c. 8.5 kilograms
d. 18.7 kilograms

431. If a worker is given a pay increase of $1.25 per hour, what it the total amount of the pay increase for one 40-hour week?

a. $49.20
b. $50.00
c. $50.25
d. $51.75

432. A teacher purchased a number of supplies to start the new school year. The costs are listed as follows: $12.98, $5.68, $20.64, and $6.76. What is the total cost?

a. $45.96
b. $46.06
c. $46.16
d. $47.16

▶ Set 28 (Answers begin on page 182.)

433. A firefighter determines that the length of hose needed to reach a particular building is 175 feet. If the available hoses are 45 feet long, how many sections of hose, when connected together, will it take to reach the building?

a. 2
b. 3
c. 4
d. 5

434. Approximately how many liters of water will a 10-gallon container hold? (one liter = 1.06 quarts)

a. 9 liters
b. 32 liters
c. 38 liters
d. 42 liters

435. If one gallon of water weighs 8.35 pounds, a 25-gallon container of water would most nearly weigh

a. 173 pounds.
b. 200 pounds.
c. 209 pounds.
d. 215 pounds.

436. Roger wants to know if he has enough money to purchase several items. He needs three heads of lettuce, which cost $0.99 each, and two boxes of cereal, which cost $3.49 each. He uses the expression $(3 \times \$0.99) + (2 \times \$3.49)$ to calculate how much the items will cost. Which of the following expressions could also be used?

a. $3 \times (\$3.49 + \$0.99) - \$3.49$
b. $3 \times (\$3.49 + \$0.99)$
c. $(2 + 3) \times (\$3.49 + \$0.99)$
d. $(2 \times 3) + (\$3.49 \times \$0.99)$

437. If you take recyclables to whichever recycler will pay the most, what is the greatest amount of money you could get for 2,200 pounds of aluminum, 1,400 pounds of cardboard, 3,100 pounds of glass, and 900 pounds of plastic?

Recycler	Aluminum	Cardboard	Glass	Plastic
X	.06/pound	.03/pound	.08/pound	.02/pound
Y	.07/pound	.04/pound	.07/pound	.03/pound

a. $409
b. $440
c. $447
d. $454

438. If the average person throws away 3.5 pounds of trash every day, how much trash would the average person throw away in one week?

a. 24.5 pounds
b. 31.5 pounds
c. 40.2 pounds
d. 240 pounds

439. If production line A can produce 12.5 units in an hour, and production line B can produce 15.25 units in an hour, how long will production line A have to work to produce the same amount of units as production line B?

a. 1 hour
b. 1.22 hours
c. 1.50 hours
d. 1.72 hours

440. Benito earns $12.50 for each hour that he works. If Benito works 8.5 hours per day, five days a week, how much does he earn in a week?

a. $100.00
b. $106.25
c. $406.00
d. $531.25

441. Des Moines recently received a snow storm that left a total of eight inches of snow. If it snowed at a consistent rate of three inches every two hours, how much snow had fallen in the first five hours of the storm?

a. 3 inches
b. 3.3 inches
c. 5 inches
d. 7.5 inches

442. A family eats at Joe's Grill and orders the following items from the menu:

Hamburger	$2.95
Cheeseburger	$3.35
Chicken Sandwich	$3.95
Grilled Cheese	$1.95

If the family orders two hamburgers, one cheeseburger, two chicken sandwiches, and one grilled cheese, what is the total cost of their order?

a. $15.15
b. $17.10
c. $18.05
d. $19.10

443. If a physical education student burns 8.2 calories per minute while riding a bicycle, how many calories will the same student burn if she rides for 35 minutes?

a. 246
b. 286
c. 287
d. 387

444. It takes a typing student 0.75 seconds to type one word. At this rate, how many words can the student type in 60 seconds?

a. 8
b. 45
c. 75
d. 80

445. John's Market sells milk for $2.24 per gallon. Food Supply sells the same milk for $2.08 per gallon. If Mitzi buys two gallons of milk at Food Supply instead of John's, how much will she save?

a. $0.12
b. $0.14
c. $0.32
d. $0.38

446. An office uses two dozen pencils and $3\frac{1}{2}$ reams of paper each week. If pencils cost five cents each and a ream of paper costs $7.50, how much does it cost to supply the office for a week?

a. $7.55
b. $12.20
c. $26.25
d. $27.45

447. If a particular woman's resting heartbeat is 72 beats per minute and she is at rest for $6\frac{1}{2}$ hours, about how many times will her heart beat during that period of time?

a. 4,320

b. 4,680

c. 28,080

d. 43,200

448. Sarah makes 2.5 times more money per hour than Connor does. If Connor earns $7.20 per hour, how much does Sarah make per hour?

a. $9.70

b. $14.40

c. $18.00

d. $180.00

▶ Set 29 (Answers begin on page 183.)

449. It takes five-year-old Carlos 1.6 minutes to tie the lace on his right shoe and 1.5 minutes to tie the lace on his left shoe. How many minutes does it take Carlos to tie both shoes?

a. 2.1 minutes
b. 3.0 minutes
c. 3.1 minutes
d. 4.1 minutes

450. Alicia rode her bicycle a total of 25.8 miles in three days. On average, how many miles did she ride each day?

a. 8.06 miles
b. 8.6 miles
c. 8.75 miles
d. 8.9 miles

451. If one inch equals 2.54 centimeters, how many inches are there in 254 centimeters?

a. $\frac{1}{10}$ inch
b. 10 inches
c. 100 inches
d. 1,000 inches

452. Erin ran 6.45 miles on Monday, 5.9 miles on Tuesday, and 6.75 miles on Wednesday. What is the total number of miles Erin ran?

a. 19.1
b. 19.05
c. 17
d. 13.79

453. Joel's resting heart rate is about 71 beats per minute. If Joel is at rest for 35.2 minutes, about how many times will his heart beat during that period of time?

a. 2,398.4
b. 2,408.4
c. 2,490.3
d. 2,499.2

454. If one pound of chicken costs $2.79 a pound, how much does 0.89 pound of chicken cost, rounded to the nearest cent?

a. $2.40
b. $2.48
c. $2.68
d. $4.72

455. On Wednesday morning, Yoder's Appliance Service had a balance of $2,354.82 in its checking account. If the bookkeeper wrote a total of $867.59 worth of checks that day, how much was left in the checking account?

a. $1,487.23
b. $1,487.33
c. $1,496.23
d. $1,587.33

456. If Nanette cuts a length of ribbon that is 13.5 inches long into four equal pieces, how long will each piece be?

a. 3.3075 inches
b. 3.375 inches
c. 3.385 inches
d. 3.3805 inches

457. At age six, Zack weighed 40.6 pounds. By age seven, Zack weighed 46.1 pounds. How much weight did he gain in that one year?

a. 4.5 pounds
b. 5.5 pounds
c. 5.7 pounds
d. 6.5 pounds

458. While on a three-day vacation, the Wilsons spent the following amounts on motel rooms: $52.50, $47.99, and $49.32. What is the total amount they spent?

a. $139.81
b. $148.81
c. $148.83
d. $149.81

459. Jake grew 0.6 inch during his senior year in high school. If he was 68.8 inches tall at the beginning of his senior year, how tall was he at the end of the year?

a. 69.0 inches
b. 69.2 inches
c. 69.4 inches
d. 74.8 inches

460. For a science project, Stacy and Tina are measuring the length of two caterpillars. Stacy's caterpillar is 2.345 centimeters long. Tina's caterpillar is 0.0005 centimeter longer. How long is Tina's caterpillar?

a. 2.0345 centimeters
b. 2.3455 centimeters
c. 2.0345 centimeters
d. 2.845 centimeters

461. About how many quarts of water will a 3.25-liter container hold?(one liter = 1.06 quarts)

a. 3.066 quarts
b. 3.045 quarts
c. 3.445 quarts
d. 5.2 quarts

462. Jessica has basic cable television service at a cost of $13.95 per month. If she adds the movie channels, it will cost an additional $5.70 per month. The sports channels cost another $4.89 per month. If Jessica adds the movie channels and the sports channels, what will her total monthly payment be?

a. $23.54
b. $23.55
c. $24.54
d. $34.54

463. The fares collected for one bus on Route G47 on Monday are as follows: Run 1—$419.50, Run 2—$537.00, Run 3—$390.10, Run 4—$425.50. What is the total amount collected?

a. $1,661.10
b. $1,762.20
c. $1,772.10
d. $1,881.00

464. Bart and Sam mow lawns at the same rate. If it takes Bart and Sam about 0.67 hour to mow one half acre lawn together, about how many hours would it take Bart alone to mow five half acre lawns?

a. 3.35 hours
b. 4.35 hours
c. 5.75 hours
d. 6.7 hours

▶ Set 30 (Answers begin on page 183.)

465. The town of Crystal Point collected $84,493.26 in taxes last year. This year, the town collected $91,222.30 in taxes. How much more money did the town collect this year?

a. $6,729.04
b. $6,729.14
c. $6,739.14
d. $7,829.04

466. It took Darren 3.75 hours to drive 232.8 miles. What was his average mile per hour speed?

a. 62.08 miles per hour
b. 62.8 miles per hour
c. 63.459 miles per hour
d. 71.809 miles per hour

467. Marly has budgeted $100.00 for the week to spend on food. If she buys a beef roast that costs $12.84 and four pounds of shrimp that cost $3.16 per pound, how much of her weekly food budget will she have left?

a. $74.52
b. $80.00
c. $84.00
d. $86.62

468. Three 15.4-inch pipes are laid end to end. What is the total length of the pipes in feet? (one foot = 12 inches)

a. 3.02 feet
b. 3.2 feet
c. 3.85 feet
d. 4.62 feet

469. If one ounce equals 28.571 grams, 12.1 ounces is equal to how many grams?

a. 37.63463 grams
b. 343.5473 grams
c. 345.7091 grams
d. 376.3463 grams

470. Theresa is weighing objects in kilograms. A book weighs 0.923 kilogram; a pencil weighs 0.029 kilogram; an eraser weighs 0.1153 kilogram. What is the total weight of the three objects?

a. 0.4353 kilogram
b. 1.0673 kilograms
c. 1.4283 kilograms
d. 10.673 kilograms

471. The Cougars played three basketball games last week. Monday's game lasted 113.9 minutes; Wednesday's game lasted 106.7 minutes; and Friday's game lasted 122 minutes. What is the average time, in minutes, for the three games?

a. 77.6 minutes
b. 103.2 minutes
c. 114.2 minutes
d. 115.6 minutes

472. Ingrid has two pieces of balsa wood. Piece A is 0.724 centimeter thick. Piece B is 0.0076 centimeter thicker than Piece A. How thick is Piece B?

a. 0.7164 centimeter
b. 0.7316 centimeter
c. 0.8 centimeter
d. 0.08 centimeter

473. Michael has a $20 bill and a $5 bill in his wallet and $1.29 in change in his pocket. If he buys a half gallon of ice cream that costs $4.89, how much money will he have left?

a. $22.48
b. $22.30
c. $21.48
d. $21.40

474. The butcher at Al's Meat Market divided ground beef into eight packages. If each package weighs 0.75 pound and he has 0.04 pound of ground beef left over, how many pounds of ground beef did he start with?

a. 5.064 pounds
b. 5.64 pounds
c. 6.04 pounds
d. 6.4 pounds

475. It is 19.85 miles from Jacqueline's home to her job. If she works five days a week and drives to work, how many miles does Jacqueline drive each week?

a. 99.25 miles
b. 188.5 miles
c. 190.85 miles
d. 198.5 miles

476. Phil and Alice went out to dinner and spent a total of $42.09. If they tipped the waiter $6.25 and the tip was included in their total bill, how much did their meal alone cost?

a. $35.84
b. $36.84
c. $36.74
d. $48.34

477. Antoine earns $8.30 an hour for the first 40 hours he works each week. For every hour he works overtime, he earns 1.5 times his regular hourly wage. If Antoine worked 44 hours last week, how much money did he earn?

a. $365.20
b. $337.50
c. $381.80
d. $547.80

478. The highest temperature in Spring Valley on September 1 was 93.6° F. On September 2, the highest temperature was 0.8° higher than on September 1. On September 3, the temperature was 11.6° lower than on September 2. What was the temperature on September 3?

a. 74° F
b. 82.2° F
c. 82.8° F
d. 90° F

479. A survey has shown that a family of four can save about $40 a week if they purchase generic items rather than brand-name ones. How much can a particular family save over six months? (one month = 4.3 weeks)

a. $1,032
b. $1,320
c. $1,310
d. $1,300

480. The Benton High School girls' relay team ran the mile in 6.32 minutes in April. By May, they were able to run the same race in 6.099 minutes. By how many minutes had their time improved?

a. 0.221 minute
b. 0.339 minute
c. 0.467 minute
d. 0.67 minute

▶ Section 3—Decimals

Set 21 (Page 48)

321. **d.** The hundredth is the second digit to the right of the decimal point. Because the third decimal is 6, the second is rounded up to 4.

322. **d.** The farther to the right the nonzero digits are, the smaller the number. Forty three thousandths is greater than 43 ten-thousandths.

323. **c.** Common errors include choice **a**, subtracting instead of adding, or choice **d**, not lining up the decimal points correctly.

324. **c.** If you line up the decimal points properly, you don't even have to do the subtraction to see that none of the other answers is even close to the correct value.

325. **a.** To evaluate this type of division problem, you need to move each decimal point four spaces to the right, and then bring that point straight up into the dividend, or answer. If you got choice **c**, you divided 0.8758 by 2.9.

326. **b.** 195.6 ÷ 7.2 yields a repeating decimal, 27.1666666 . . ., which, rounded up to the nearest hundredth, is 27.17.

327. **c.** The other answers were subtracted without aligning the decimal point correctly. The correct placement of the decimal point is 510.8.

328. **a.** The correct answer is 49.98. Not lining up the decimal points correctly is the most common error in this type of equation.

329. **b.** The correct answer to this basic subtraction problem is 1.168.

330. **b.** After you multiply the digits, it is important to place the decimal point correctly in the answer: 148.32.

331. **d.** Because there are two decimal places in each of the numbers being multiplied, the product, 0.1904, will have four.

332. **d.** This is a mixed decimal, which included a whole number placed to the left of the decimal point. The zero is in the tenths place and the 4 is in the hundredths place: 5.04.

333. **b.** The correct answer is 1.

334. **a.** Because the digit in the hundredths place is less than 5, the tenths place would round down to 0.2.

335. **c.** The thousandths place is the third digit to the right of the decimal point, so 1.0086 is the correct answer.

336. **b.** The correct answer is 1.08.

Set 22 (Page 50)

337. **a.** It is important to align the decimal points, especially when adding vertically. The correct answer is 70.821.

338. **c.** There needs to be four digits to the right of the decimal point, so 0.0378 is the correct answer.

339. **a.** Divide as usual, using the long division algorithm. Then bring the decimal point up to get 3.965.

340. **b.** The correct answer is 261.667.

341. **a.** This is a simple addition problem to which 0.0793 is the correct answer.

342. **d.** A zero is assumed if there is no digit in the final place of a decimal number. After regrouping, the correct answer is 1.83.

343. **c.** Squaring 100 yields 10,000. Move the decimal point four places to the right in 4.32 to get the correct answer of 43,200.

344. **c.** The correct answer is 0.068.

345. **d.** There needs to be four digits to the right of the decimal point. Therefore, 122.2625 is the correct answer.

346. **c.** Ten times 10 times 10 is 1,000. One thousand times 7.25 is 7,250.

347. **d.** To multiply two numbers expressed in scientific notation, multiply the nonexponential terms (4.1 and 3.8) in the usual way. Then the exponential terms (10^{-2} and 10^{4}) are multiplied by adding their exponents. So $(4.1 \times 10^{-2})(3.8 \times 10^{4}) = (4.1 \times 3.8)(10^{-2} \times 10^{4}) = (15.58)(10^{-2+4}) = (15.58)(10^{2}) = 15.58 \times 10^{2}$. In order to express this result in scientific notation, you must move the decimal point one place to the left and add one to the exponent, resulting in 1.558×10^{3}.

348. **b.** To divide two numbers in scientific notation, you must divide the nonexponential terms (6.5 and 3.25) in the usual way, and then divide the exponential terms (10^{-6} and 10^{-3}) by subtracting the exponent of the bottom term from the exponent of the top term, so that you get $\frac{(6.5 \times 10^{-6})}{(3.25 \times 10^{-3})} = \frac{6.5}{3.25} \times \frac{10^{-6}}{10^{-3}} = 2 \times 10^{-6-(-3)} = 2 \times 10^{-6+3} = 2 \times 10^{-3}$.

349. **a.** The product is the answer when two numbers are multiplied. Therefore, 0.368 is the correct answer.

350. **d.** The correct answer to this simple addition problem is 1.268.

351. **c.** The decimal –0.16 is less than –0.06, the smallest number in the range.

Set 23 (Page 52)

352. **a.** The 8 is two places to the right of the decimal point, so the correct answer is eight hundredths.

353. **a.** The greatest value to the right of the decimal point can be determined by the tenths place. Choices **a**, **c**, and **d** all have a two in the tenths place. Choice **a** is correct because its values in the hundredths and thousandths places are greater than the other two possible answers.

354. **d.** Because there are zeros in both the tenths and hundredths place, 0.0097 is the lowest number of all the choices.

355. **b.** When you are rounding the hundredths place, it is necessary to look at the thousandths place. Since 8 is greater than 5, round up to 43.01.

356. **b.** First, add the three numbers to get a sum of 65.698. This number rounded to the nearest tenth is 65.7.

357. **a.** The sum of these three numbers is 42.6561.

358. **c.** Subtract the second number from the first. Then subtract the third number from that difference to get 2.87 as the correct answer.

359. **c.** The equation to be used is (70T + 60T) = 325.75, or 130T = 325.75; T = 2.5.

360. **c.** Since $3.20 is the sale price, add $0.75 to $3.20 to find the original price. Line up the decimal points, and the result is $3.95.

361. **d.** To find the total, add the known amounts together: 1.42 + 1.89 = 3.31 liters.

362. **a.** To subtract, write the first number as 17.80 and subtract 14.33. The answer is 3.47.

363. **b.** Add the numbers together to find the total of 34.47.

364. **d.** Add $15.75 to $67.98 and then subtract $27.58. The answer is $56.15.

365. **c.** First, add the cost of the wallpaper and carpet, which is $701.99. Subtract that from $768.56. The difference is $66.57.

366. **b.** One hundred cases is five times twenty cases, so the cost is 20 times $11.39, or $227.80.

367. **c.** To find the average, divide the total by the number of days: $87 ÷ 6 = $14.50 per day.

368. **b.** Eight times $23.65 is $189.20.

Set 24 (Page 54)

369. **c.** 5.96 divided by 4 equals 1.49.

370. **a.** There are twelve inches in one foot; 2.54 multiplied by 12 is 30.48.

371. **c.** In the first two hours, they are working together at the rate of one aisle per hour for a total of two aisles. In the next two hours, they work separately. Melinda works for two hours at 1.5 hours per aisle; 2 ÷ 1.5 = 1.33 aisles. Joaquin works for two hours at two hours per aisle. This is one aisle. The total is 4.33 aisles.

372. **a.** Calculate what Robin makes in an eight-hour day and then divide by 3, since Patrick makes $\frac{1}{3}$ of Robin's earnings; 21 × 8 = $168; $168 ÷ 3 = $56.

373. **b.** Forty-five minutes is equal to $\frac{3}{4}$ of an hour, so Reva will make only $\frac{3}{4}$ of her usual fee. Change $\frac{3}{4}$ to a decimal: 0.75. Now multiply: 10 × 0.75 = 7.5. Reva will make $7.50 today.

374. **c.** Change the fraction to a decimal: 0.25 (which is $\frac{1}{4}$ as fast, or 25% of Zelda's time). Now multiply: 35.25 × 0.25 = 8.8125, which can be rounded to 8.81.

375. **c.** This problem is done by dividing: 1.5 ÷ 600 = 0.0025 inch.

376. **b.** Since the time given is in minutes, convert to hours. There are 60 minutes in one hour, so $\frac{15}{60}$ = 0.25 hours. Use the formula *Distance* = *rate* × *time*, whereby the rate is 4.5 miles per hour and the time is 0.25 hours. Distance = (4.5)(0.25) = 1.125 miles. The fact that Michael leaves at 7:32 A.M. is irrelevant to this question.

377. **b.** Kyra saves $60 + $130 + $70, which equals $260. In January, her employer contributes $60 × 0.1 = $6, and in April, her employer contributes $70 × 0.1 = $7. In March, her employer contributes only $10 (**not** $13), because $10 is the maximum employer contribution. The total in savings then is $260 + $6 + $7 + $10 = $283. (If you chose choice **c**, you forgot that the employer's contribution was a *maximum* of $10.)

378. **a.** This is a subtraction problem. Align the decimals and subtract: 428.99 – 399.99 = 28.99.

379. **c.** This is a multiplication problem with decimals: 2.5 × 2,000 = 5,000.

380. **c.** This is a division problem: 304.15 ÷ 38.5. Because there is one decimal point in 38.5, move the decimal point one place in both numbers: $\frac{3{,}041.5}{385}$ = 7.9.

381. **c.** This is a multiplication problem. To multiply a number by 1,000 quickly, move the decimal point three digits to the right—one digit for each zero. In this situation, because there are only two decimal places, add a zero.

382. **d.** This is a division problem. Divide 12.9 by 2 to get 6.45, and then add both numbers: 12.90 + 6.45 = 19.35.

383. **a.** This is a division problem. Because there are two decimal points in 1.25, move the decimal point two places in both numbers: $\frac{2{,}240}{125}$ = 17.92.

384. **b.** This is a simple subtraction problem. Be sure to align the decimal points: 99.0 – 97.2 = 1.8.

Set 25 (Page 56)

385. **b.** Both addition and subtraction are required to solve this problem. First, add the amounts of the three purchases together: 12.90 + 0.45 + 0.88 = 14.23. Next, subtract this amount from 40: 40.00 − 14.23 = 25.77.

386. **d.** This problem requires both multiplication and addition. First, multiply 2.12 by 1.5 to find the price of the cheddar cheese: $2.12 \times 1.5 = 3.18$. Then add: 3.18 + 2.34 = 5.52.

387. **b.** This problem requires both addition and subtraction. First, add the three lengths of string: 5.8 + 3.2 + 4.4 = 13.4. Then subtract the answer from 100, making sure to align the decimal points: 100.0 − 13.4 = 86.6.

388. **c.** This is a simple division problem; $\frac{2.00}{3} = 0.666$. Because 6 is higher than 5, round up to 7.

389. **a.** This is a simple addition problem. Line up the decimals in a column so that the decimal points are aligned: 9.4 + 18.9 + 22.7 = 51.

390. **b.** This is a multiplication problem with decimals. Manny spends $1.10 each way and makes 10 trips each week: $1.10 \times 10 = 11.00$.

391. **b.** Divide 0.75 by 0.39 to get approximately 1.923 centimeters.

392. **c.** $5.133 \times 10^{-6} = 5.133 \times 0.000001 = 0.000005133$. This is the same as simply moving the decimal point to the left six places.

393. **a.** Add the four numbers. The answer is $23.96.

394. **b.** Add all of the money gifts as well as what Hal earned. The total is $4,772.56. Subtract this number from the cost of the car. The remainder is $227.39.

395. **c.** Subtract 2.75 from 10 by adding a decimal and zeros to the 10: 10.00 − 2.75 = 7.25. Don't forget to line up the decimals.

396. **d.** Remember to ignore the decimals when multiplying $8{,}245 \times 92 = 758{,}540$. Then, total the number of decimal points in the two numbers you multiplied (four) and place the decimal point four places from the right in the answer: 75.8540.

397. **b.** Divide 517.6 by 23.92. Don't forget to move both decimals two spaces to the right (add a zero to 517.6); move the decimal up directly and divide. The answer is 21.6387. Round up to 21.64.

398. **d.** To find the difference, subtract 22.59 from 23.7. To keep the decimal placement clear, remember to add a zero to 23.7.

399. **a.** Add the three amounts, adding zeros where necessary. The total is 11.546, rounded down to 11.5 pounds.

400. **d.** This is a multiplication problem. Multiply the approximate words per minute times the number of minutes: $41.46 \times 8 = 331.68$.

Set 26 (Page 58)

401. **a.** Add all the candy Ingrid distributed or consumed and subtract that number from 7.5. The result is 5.44 pounds.

402. **c.** Add all the distances together. The sum is 16.32.

403. **b.** The decimal 20.34 divided by 4.75 equals 4.282. Ken can cover four chairs.

404. **d.** The total balance before expenditures is $2,045.38. The total expenditure is $893.14. Subtracted, the total is $1,152.24.

405. **d.** Multiply the length by the width to get 98.4375. Since the hundredths place is two places to the right of the decimal, the rounded answer is 98.44 square inches.

406. **b.** Five pounds of flour divided by 0.75 equals 6.6666. . . . Michael can make six cakes.

407. **d.** Add all the distances and divide by the number of days she walked; 4.38 divided by 4 = 1.095.

408. **c.** Add the eaten amounts and subtract from the total: 12.600 – 6.655 = 5.945 pounds of clams are left. (If you chose choice **d**, you forgot the last step of the problem.)

409. **a.** Solve 2.4 – 1.025, being careful to line up the decimal points. The answer is 1.375 million dollars.

410. **b.** Divide 76 by 2.89. This equals about 26.29 square feet, which rounds to 26 square feet.

411. **b.** Subtract the hours actually worked from the hours usually worked; the number of hours is 4.75.

412. **a.** Add the three amounts together. The total is 1.63 acres.

413. **d.** To find the area, multiply the length by the width. The area is 432.9 square feet.

414. **a.** The total of ads and previews is 11.3 minutes. Two hours is 120 minutes; 120 – 11.3 = 108.7.

415. **c.** Ten yards divided by 0.65 equals $15.\overline{384615}$ (repeating). Tommy can make 15 hats.

416. **b.** Add the four amounts. The total is 28.13 hours.

Set 27 (Page 61)

417. **c.** The distance around this section is the perimeter of the rectangle. This is found by adding the two known dimensions and multiplying by 2, since there are two pairs of sides that are the same: 2(16.25 + 20.25) = 2(36.5) = 73 feet.

418. **c.** 8.6 million minus 7.9 million equals 0.7 million.

419. **b.** $1.13 multiplied by 100 equals $113.00. Remember, a shortcut for multiplying fractions by 10, 100, 1,000, etc. is simply to move the decimal to the right one space for each zero.

420. **d.** The four distances added together equal 5.39 miles.

421. **b.** Fifteen minutes is $\frac{1}{4}$, or 0.25, of an hour; 0.25 of 46.75 is 0.25 × 46.75 = 11.6875.

422. **a.** Multiply 46.75 by 3.80, which equals 177.65.

423. **c.** The ratio of boys to total students is 3:4, or $\frac{3}{4}$, which is equal to 0.75; 0.75 × 28 = 21.

424. **a.** This is a division problem with decimals; 4,446 ÷ 1.17 = 3,800.

425. **b.** You must divide two decimals: 20.32 ÷ 2.54. First, move each number over two decimal places: 2,032 ÷ 254 = 8.

426. **c.** This is a four-step problem. First, determine how much she earns in one eight-hour day: 8 × $12.50 = $100. Next, subtract $100 from $137.50 to find how much overtime she earned: $137.50 – $100 = $37.50. Next, to find out how much her hourly overtime pay is, multiply 1.5 × 12.50, which is 18.75. To find out how many overtime hours she worked, divide: 37.50 ÷ 18.75 = 2. Add these two hours to her regular eight hours for a total of 10 hours.

427. **b.** Solving this problem requires converting 15 minutes to 0.25 hour, which is the time, and then using the formula $d = rt$: 62 miles per hour × 0.25 hour = 15.5 miles.

428. **d.** Distance traveled is equal to velocity (or speed) multiplied by time. Therefore, $3.00 \times (10^8) \frac{\text{meters}}{\text{second}} \times 2{,}000$ seconds $= 6.00 \times 10^{11}$ meters.

429. **a.** First it is necessary to convert centimeters to inches. To do this for choice **a**, multiply 100 centimeters (1 meter) by 0.39 inches, yielding 39 inches. For choice **b**, 1 yard is 36 inches. For choice **d**, multiply 85 centimeters by 0.39 inches, yielding 33.15 inches. Choice **a**, 39 inches, is the longest.

430. **b.** To solve this problem, divide the number of pounds in the weight of the cat (8.5) by the number of pounds in a kilogram (2.2); 8.5 divided by 2.2 equals approximately 3.9 kilograms.

431. **b.** This is a multiplication problem: $1.25 times 40 is $50.

432. **b.** To find the total cost, add the four amounts together. Be sure to line up the decimal points. The total is $46.06.

Set 28 (Page 63)

433. **c.** The answer is arrived at by first dividing 175 by 45. Since the answer is 3.89, not a whole number, the firefighter needs four sections of hose. Three sections of hose would be too short.

434. **c.** First, convert 10 gallons into quarts. Since there are four quarts in one gallon, there are 40 quarts in 10 gallons. Now divide 40 quarts by 1.06, since one liter is equal to 1.06 quarts. Forty divided by 1.06 is approximately equal to 37.74, or about 38 liters.

435. **c.** To solve the problem, take the weight of one gallon of water (8.35) and multiply it by the number of gallons (25): $8.35 \times 25 = 208.75$. Now round to the nearest unit, which is 209.

436. **a.** Because there are three at $0.99 and two at $3.49, the sum of the two numbers minus $3.49 will give the cost.

437. **d.** 2,200(0.07) equals $154; 1,400(0.04) equals $56; 3,100(0.07) equals $217; 900(0.03) equals $27. Therefore, $154 + $56 + $217 + $27 = $454. The other recycler offers only $440.

438. **a.** To solve the problem, multiply 3.5 pounds by 7, the number of days in one week.

439. **b.** The solution is simply the ratio of the rates of work, which is 15.25:12.5, or $\frac{15.25}{12.5}$ or 1.22. (To check your work multiply: 12.5 units $\times$ 1.22 hours = 15.25.)

440. **d.** $12.50 per hour $\times$ 8.5 hours per day $\times$ 5 days per week is $531.25.

441. **d.** Three inches every 2 hours = 1.5 inches per hour $\times$ 5 hours = 7.5 inches.

442. **d.** This can be most quickly and easily solved by estimating, that is, by rounding the numbers to the nearest ten cents: two hamburgers at $3 = $6; $6 + one cheeseburger at $3.40 = $9.40; two chicken sandwiches at $4 = $8. Then, $8 + one grilled cheese at $2 = $10. $9.40 + $10 = $19.40. Therefore, the nearest and most reasonable answer would be choice **d**, $19.10.

443. **c.** This is a simple multiplication problem that is solved by multiplying 35 times 8.2 for a total of 287.

444. **d.** This problem is solved by dividing 60 (the time) by 0.75 (the rate), which gives 80 words.

445. **c.** To find the answer, solve this equation: ($2.24 – $2.08) $\times$ 2 = $0.32.

446. **d.** First, find the total price of the pencils: 24 pencils $\times$ $0.05 = $1.20. Then find the total price of the paper: 3.5 reams $\times$ $7.50 per ream

= $26.25. Next, add the two totals together: $1.20 + 26.25 = $27.45.

447. **c.** This is a two-step multiplication problem. To find out how many heartbeats there would be in one hour, you must multiply 72 by 60 minutes, and then multiply this result, 4,320, by 6.5 hours.

448. **c.** Multiply $7.20 by 2.5 to get $18. Be sure to move the decimal to the left the correct number of spaces in your answer.

Set 29 (Page 66)

449. **c.** This is a simple addition problem. Add 1.6 and 1.5, keeping the decimal points aligned: 1.6 + 1.5 = 3.1.

450. **b.** This is a division problem: 25.8 ÷ 3 = 8.6. Move the decimal point straight up into the quotient.

451. **c.** You arrive at this answer by knowing that 254 is 100 times 2.54. To multiply by 100, move the decimal point two digits to the right.

452. **a.** This is an addition problem. Add the three numbers together, making sure the decimal points are aligned.

453. **d.** This is a multiplication problem: 35.2 × 71 = 2,499.2. There is only one decimal point, so you will count off only one place from the right.

454. **b.** This is a multiplication problem. First, multiply 279 by 89. Then, because there are four decimal places, count off four places from the right. Your answer should be 2.4831. Because the 3 in the thousandths place is less than 5, round to 2.48.

455. **a.** This is a basic subtraction problem. Line up the decimals and subtract: 2,354.82 − 867.59 = 1,487.23.

456. **b.** This is a division problem: 13.5 ÷ 4 = 3.375. Move the decimal straight up into the quotient.

457. **b.** This is a simple subtraction problem. Line up the decimals and subtract: 46.1 − 40.6 = 5.5.

458. **d.** This is an addition problem. To add these three decimals, line them up in a column so that their decimal points are aligned: 52.50 + 47.99 + 49.32 = 149.81. Move the decimal point directly down into the answer.

459. **c.** This is a basic addition problem. Be sure to align the decimal points before you add 68.8 + 0.6 = 69.4.

460. **b.** This is an addition problem. Arrange the numbers in a column so that the decimal points are aligned: 2.345 + 0.0005 = 2.3455.

461. **c.** This is a multiplication problem. Multiply 3.25 times 1.06. Be sure to count four decimal places from the right: 3.25 × 1.06 = 3.445.

462. **c.** This is an addition problem. Arrange the three numbers in a column so that the decimal points are aligned: 13.95 + 5.70 + 4.89 = 24.54.

463. **c.** This is an addition problem with decimals. Add the four numbers together to arrive at the answer, which is $1,772.10.

464. **d.** This is a two-step multiplication problem. First, find out how long it would take for both Bart and Sam to do the job: 0.67 × 5 = 3.35. Then, multiply your answer by 2 because it will take Bart twice as long to complete the job alone: 3.35 × 2 = 6.7

Set 30 (Page 68)

465. **a.** This is a simple subtraction problem. Align the decimal points and subtract: 91,222.30 − 84,493.26 = 6,729.04.

466. **a.** This is a division problem. Because there are two decimal digits, move the decimal point two places to the right in both numbers. This means you must tack a zero on to the end of 2,328. Then divide: 23,280 ÷ 375 = 62.08.

467. **a.** This is a three-step problem that involves multiplication, addition, and subtraction. First, to determine the cost of the shrimp, multiply 3.16 by 4: 3.16 × 4 = 12.64. Then add the price of both the shrimp and the beef: 12.64 + 12.84 = 25.48. Finally, subtract to find out how much money is left: 100.00 − 25.48 = 74.52.

468. **c.** This is a two-step problem involving multiplication and division. First, determine the length of the pipes in inches by multiplying: 15.4 × 3 = 46.2. Next, divide to determine the length in feet: 46.2 ÷ 12 = 3.85. Because there are no decimal points in 12, you can move the decimal point in 46.2 straight up into the quotient.

469. **c.** This is a multiplication problem. Be sure to count four decimal places from the right in your answer: 28.571 × 12.1 = 345.7091.

470. **b.** This is an addition problem. Arrange the three numbers in a column and be sure that the decimal points are aligned. Add: 0.923 + 0.029 + 0.1153 = 1.0673.

471. **c.** This is a two-step problem involving both addition and division. First, arrange the three numbers in a column, keeping the decimal points aligned. Add: 113.9 + 106.7 + 122 = 342.6. Next, divide your answer by 3: 342.6 ÷ 3 = 114.2.

472. **b.** This is an addition problem. Be sure the decimal points are aligned before you add: 0.724 + 0.0076 = 0.7316.

473. **d.** This problem involves two steps: addition and subtraction. Add to determine the amount of money Michael has: 20.00 + 5.00 + 1.29 = 26.29. Then, subtract the amount of the ice cream: 26.29 − 4.89 = 21.40.

474. **c.** This is a two-step problem. First, multiply to determine how many pounds of beef were contained in the eight packages: 0.75 × 8 = 6. Then add: 6 + 0.04 = 6.04.

475. **d.** This is a two-step multiplication problem. First, multiply: 5 × 2 = 10, which is the number of trips Jacqueline drives to get to work and back. Then multiply 19.85 by 10 by simply moving the decimal one place to the right.

476. **a.** This is a simple subtraction problem: 42.09 − 6.25 = 35.84.

477. **c.** This is a three-step problem. First, multiply to determine the amount Antoine earned for the first 40 hours he worked: 40 × 8.3 = 332. Next, multiply to determine his hourly wage for his overtime hours: (1.5 × 8.3)4 = 49.8. Finally, add the two amounts: 332 + 49.8 = 381.8.

478. **c.** This is a two-step problem involving both addition and subtraction. First add: 93.6 + 0.8 = 94.4. Then subtract: 94.4 − 11.6 = 82.8.

479. **a.** This is a two-step multiplication problem. First, multiply to find out how many weeks there are in six months: 6 × 4.3 = 25.8. Then, multiply to find out how much is saved: $40 × 25.8 = $1,032.

480. **a.** This is a subtraction problem. Be sure to align the decimal points: 6.32 − 6.099 = 0.221.