

 In the following problems, use rounding to select the correct answer from the choices. Then use a calculator to check each answer.



14. $94 \times 81 =$

- a. 724
- b. 7,614
- c. 14,084
- d. 17,234

15. $4,156 \times 18 =$

- a. 41,208
- b. 56,608
- c. 74,808
- d. 83,308

16. $56(73) =$

- a. 4,088
- b. 8,208
- c. 14,084
- d. 14,518

17. $(39)(6,234) =$

- a. 18,646
- b. 24,316
- c. 186,246
- d. 243,126

18. $36 \cdot 425 =$

- a. 8,700
- b. 9,600
- c. 15,300
- d. 21,900

19. $26 \times 5,085 =$

- a. 132,210
- b. 112,910
- c. 90,670
- d. 88,560

20. $(78)(112) =$

- a. 3,226
- b. 4,216
- c. 6,106
- d. 8,736

21. $5,736 \cdot 63 =$

- a. 442,828
- b. 361,368
- c. 243,118
- d. 186,208

22. $963 \times 48 =$

- a. 28,804
- b. 37,514
- c. 39,084
- d. 46,224

23. $(472)(681) =$

- a. 152,642
- b. 181,822
- c. 243,512
- d. 321,432

24. $21(734) =$

- a. 9,364
- b. 15,414
- c. 18,704
- d. 20,064

25. $798 \cdot 657 =$

- a. 642,826
- b. 524,286
- c. 414,346
- d. 382,156

When an Estimate Is the Answer

The Lanier family spends \$122 per week on groceries, while the Lake family spends \$39. About how many times more do the Laniers' groceries cost than the Lakes'?

- a. $\frac{1}{2}$ b. 2 c. 3 d. 4 e. 5

**How do you know when to estimate the answer to a problem?
Do you need to compute an exact answer for the problem above?**

Word problems like the one above do not require you to find an exact answer. The clue that you need only an *estimated* answer for the problem above is the word *about*. In other problems you may see the word *approximately*. These clue words tell you to round the numbers in the problem to get an *approximate* answer.

Round the numbers above.

$$122 \approx 120 \quad 39 \approx 40$$

By looking quickly at these rounded numbers, you can see that 120 is 3 *times* 40.

$$120 \div 40 = 3$$

The answer to this problem is **c. 3** even though 3×39 is not *exactly* 122. Remember that the question asked "about how many times?"

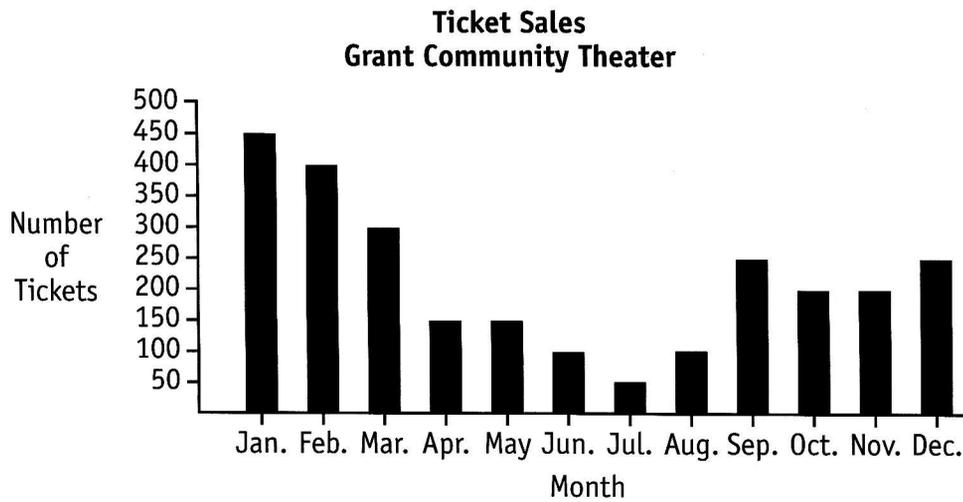
TIP

Look for clue words such as *about* and *approximately*. When you see these words in a word problem, think about estimating the answers.

 Solve the following word problems by estimating. Remember to watch out for clue words.

- WN** 1. The first week on her new job as a salesperson, Sandy made 4 sales. By the last week of the month she made 23 sales. About how many times did her sales increase?
- a. 4 b. 6 c. 19 d. 23 e. not enough information given
- M** 2. It takes Earl about 7 minutes to run around the school yard. About how many times will he need to run around the yard to complete his 1 hour of physical education?
- a. 1 b. 4 c. 8 d. 60 e. not enough information given

Problems 3–5 refer to the graph shown below.



- WN** 3. About how many times as many tickets were sold in January as in July?
- a. 9 b. 10 c. 50 d. 450 e. not enough information given
- D** 4. Tickets cost \$3.75 each. About how much money did the theater take in during the first 3 months of the year?
- a. \$300 b. \$400 c. \$450 d. \$1,150 e. \$4,600
- P** 5. Approximately what percent of the April–May–June sales took place in June?
- a. 1% b. 5% c. 10% d. 25% e. 50%

Estimating the Answer

Tara waitressed Saturday and earned \$15.75 in tips. The previous Saturday she earned 3 times that much. How much money did Tara earn on the previous Saturday?

- a. \$5.25 b. \$12.75 c. \$31.50 d. \$47.25 e. \$57.20

Without doing any computation, decide which of the answer choices above *might* be the right answer.

How did you decide?

When you **estimate** an answer to a problem, you get a rough idea of the correct answer by rounding off the numbers in the problem to make them easier to work with. Here are some steps to follow.

STEP 1 Try an estimated solution.

STEP 2 Choose the answer choice closest to your estimate.

STEP 3 Check your estimate with the original numbers.

\swarrow \$15.75 is about \$16
 $\$16 \times 3 = \48 (estimated answer)

Choice d. \$47.25 is closest to \$48.

$\$15.75 \times 3 = \47.25 (real answer)

On multiple-choice tests, an estimate helps you choose the correct answer quickly.

You can indicate “is approximately equal to” with the sign \approx . In the problem above, $\$47.25 \approx \48 .



For each problem below, first estimate an answer. Then use your estimate to choose from the list of answers. Finally, find an exact answer and compare it to your estimate.



EXAMPLE An assembly-line worker can complete 864 circuit boards in 24 hours. At this rate, how many boards can she complete in 1 hour?

- a. 28 b. 30 c. 36 d. 360 e. 400

Estimate: 864 \rightarrow 900 circuit boards $900 \div 20 = 45$
 24 \rightarrow 20 hours

Answer choice: c. 36 36 is closest to 45.

Exact solution: $864 \div 24 = 36$ This verifies the estimate.

TIP

Estimation is a useful tool. You can estimate in your head or with paper and pencil to

- Find an appropriate answer.
- Check to see if your answer makes sense.

