

# EXERCISES

For more practice, see *Extra Practice*.

## A Practice by Example

**Example 1**  
(page 64)

Write the next two terms in each number pattern.

1. 2, 6, 10, 14, ...
2. 99, 88, 77, 66, ...
3. 1, 3, 9, 27, ...
4. 1, 1.4, 1.8, 2.2, ...

**Example 2**  
(page 64)

Write the first six terms in each number pattern.

5. Start with 7 and add 4 repeatedly.
6. Start with 512 and divide by 2 repeatedly.

**Example 3**  
(page 65)

Write the next three terms and write a rule for each number pattern.

7. 1, 5, 25, 125, ...
8. 2, 10, 50, 250, ...
9. 6,000,000; 600,000; 60,000; ...
10. \$2.85, \$5.70, \$8.55, ...

Departures

Red Train	Blue Train
12:51 P.M.	12:17 P.M.
1:51 P.M.	1:02 P.M.
2:51 P.M.	1:47 P.M.
3:51 P.M.	2:32 P.M.

- 11. Schedules** The schedule shows the departure times for two trains. Predict the remaining departure times before 6 P.M. for each train.
- a. The Blue Train.
  - b. The Red Train.

## B Apply Your Skills

Write the fifth term of each number pattern.

12. 1, 8, 64, 512, ...
13. 18, 15, 12, 9, ...
14. 0, 17, 34, 51, ...
15. 0.12, 1.2, 12, 120, ...
16. 2, 8, 14, 20, ...
17. 100, 89, 78, 67, ...

- 18. Astronomy** Edmond Halley (1656–1742) first saw the comet named for him in 1682. He correctly predicted that it would return about every 76 years.
- a. Based on Halley's calculations, when did the comet last appear?
  - b. When is the comet expected to return next? About how old will you be when that happens?
  - c. **Number Sense** Did Halley see the comet a second time? Explain.

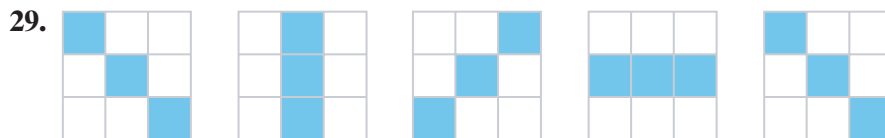
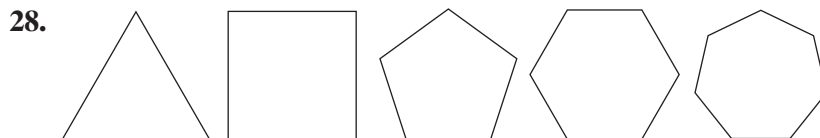
**Find the missing term.**

19. 7, 21, 63, ■, 567  
20. 352, ■, 88, 44, 22, 11  
21. ■, 180, 144, 108  
22. 1, 0.2, 0.04, ■, 0.0016  
23. 1.2, 2.4, ■, 9.6, 19.2  
24. ■, 91, 83, 75

25. **Writing in Math** Write a number pattern and its rule.

26. **Business** A dry cleaner charges \$5.00 to clean one item. He offers to clean a second item for \$4.50, and a third item for \$4.00.  
a. If he continues to subtract \$.50 for each additional item, how much will it cost to clean six items?  
b. If the pattern continues, which item will be cleaned for free?
27. **Computers** The Difference Engine is a computer designed by Charles Babbage (1791–1871). If you feed it a list of numbers, it will look for a pattern and continue the list, if possible. Why do you think the computer was given this name?

**Geometry** Draw the next design in each pattern.

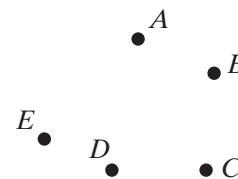


**Challenge**

30. The number pattern below is called a Fibonacci sequence. Write a rule to describe this number pattern.

1, 1, 2, 3, 5, 8, 13, 21, 34, 55, ...

31. **Stretch Your Thinking** How many different straight lines can you draw through any two of the points at the right?





## Test Prep

### Reading Comprehension

Read the article below and answer Exercises 32 and 33.

### *Leap Year*

It takes about 365.24 days for Earth to orbit the sun. Four years of 365.24 days is about three years with 365 days each, plus a fourth year with 366 days. This fourth year is known as a “leap year.”

In a leap year, February has 29 days. A leap year is any year that can be divided by 4, except century years, such as 1500. Only century years that can be divided evenly by 400, such as 1600, are leap years.

### Multiple Choice

32. Which years between 2007 and 2030 will be leap years?
33. Will 2100 be a leap year? Explain.
34. What is the value of the missing term? 102, 94, 86, ■, 70, 62, 54.  
A. 76                      B. 78                      C. 79                      D. 80
35. What is the fifth term in the number pattern? 1; 20; 400; 8,000; ...  
F. 8,400                      G. 16,000                      H. 80,000                      I. 160,000
36. What is the fifth term in the number pattern? 3, 7, 11, 15, ...  
A. 16                      B. 17                      C. 18                      D. 19



### Take It to the NET

Online lesson quiz at  
[www.PHSchool.com](http://www.PHSchool.com)  
Web Code: aaa-0201

## Mixed Review

### Lesson 1-5

First estimate then find each sum or difference.

37.  $15.1 - 11.9$                       38.  $1.10 - 0.04$                       39.  $50.2 - 0.99$
40.  $17.2 - 4.5$                       41.  $2.005 + 2.307$                       42.  $8.01 + 1.7 + 1.09$