# Unit Review

What Do I Need to Know?

✔ A *factor* of a number divides into the number exactly; that is, there is no remainder.
For example, $6 \div 2 = 3$, so 2 is a factor of 6.

✔ A *prime number* has only 2 factors, itself and 1.
For example, the only factors of 17 are 17 and 1, so 17 is a prime number.

✔ A *composite number* has more than 2 factors.
For example, 12 has factors 1, 2, 3, 4, 6, and 12, so 12 is a composite number.

✔ A *square number*, or *perfect square*, has an odd number of factors.
It can also written as a power with exponent 2.
For example, the factors of 9 are 1, 3, and 9, so 9 is a perfect square.
We write $9 = 3^2$.

✔ A *square root* of a number is a factor that is squared to get the number.
For example, 9 is a square root of 81 because $9^2 = 81$.
We write $\sqrt{81} = 9$.

✔ When a number is written in *exponent form*, it is written as a *power*.
For example, for the power 5^3:
5 is the *base*.
3 is the *exponent*.
$5 \times 5 \times 5$ is the *expanded form*.
125 is the *standard form*.

✔ A *cube number*, or *perfect cube*, is a power with exponent 3.
For example, $1^3 = 1$, $2^3 = 8$, $3^3 = 27$, $4^3 = 64$,
so 1, 8, 27, and 64 are perfect cubes.
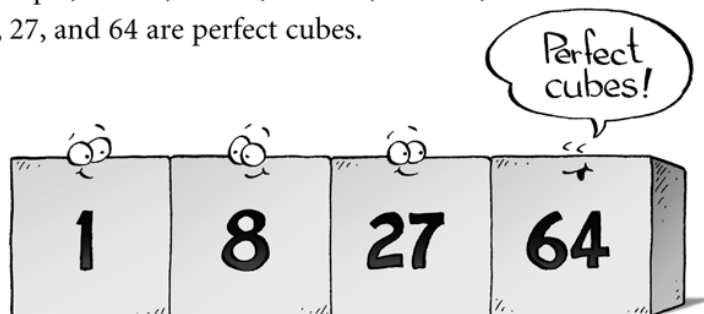
1. Find each answer.
  Use pencil and paper.
  a) 3621 + 8921
  b) 5123 − 4123
  c) 35 × 12
  d) 125 × 27
  e) 815 + 642 − 85
  f) 1638 ÷ 21

2. This table shows the highest
  all-time scorers at the end of
  the 2000–2001 NBA season.

Kareem Abdul-Jabbar	38 387
Karl Malone	32 919
Wilt Chamberlain	31 419
Michael Jordan	29 277

  a) What is the total number
     of points?
  b) Write a problem about these
     data. Solve your problem.
     Justify the strategy you used.

3. a) Write the number 300 as the
     sum of 2 or more consecutive
     whole numbers. Find as many
     ways to do this as you can.
  b) What patterns do you see in
     the numbers added?
  c) Suppose you started with
     another 3-digit number.
     Will you see similar patterns?
     Investigate to find out.

4. Solve each problem. State any
  assumption you made.
  a) Armin's house is 3 km from a
     mall. He walks 1 km in 15 min.
     How long does it take Armin to
     walk to the mall?
  b) Tana makes $15, $21, and $19
     for baby-sitting one weekend.
     How much will Tana make in
     a month?

5. The table shows the ticket prices
  and number of tickets sold for a
  popular movie.

	Ticket Price ($)	Number of Tickets Sold
Adults	12	125
Seniors	10	34
Youths	8	61

  Calculate the total cost of the
  ticket sales.

6. Find all the factors of each number.
  a) 36   b) 50
  c) 75   d) 77

7. Find the first 10 multiples of
  each number.
  a) 9   b) 7
  c) 12   d) 15

8. For the numbers 18 and 60, find:
  a) the GCF   b) the LCM
  Draw a Venn diagram to illustrate
  part a.

**9.** How many prime numbers are even? Justify your answer.

1.3 **10.** Find a square root of each number.
a) 121 b) 169 c) 225

11. Find each square root. Draw a picture if it helps.
a) $\sqrt{25}$ b) $\sqrt{100}$ c) $\sqrt{81}$

12. Calculate the area of a square with each side length.
a) 7 cm b) 17 cm c) 93 m

13. The area of a square is 81 m². What is the perimeter of the square? How do you know?

14. Raquel cooks 8-cm square hamburgers on a grill. The grill is a rectangle with dimensions 40 cm by 40 cm. How many hamburgers can be grilled at one time? Justify your answer.
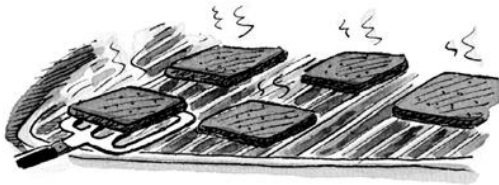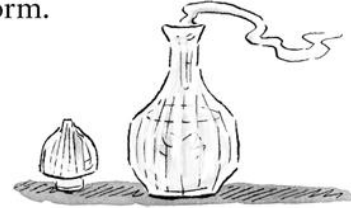
1.4 **15.** Copy and complete this table.

	Exponent Form	Base	Exponent	Expanded Form	Standard Form
a)	3^4				
b)	2^5				
c)	10^7				
d)		5	4		
e)				4×4×4×4	

1.5 **16.** A perfume formula requires 4 g of an essential oil per bottle.
a) How many grams are needed for 2500 bottles?
b) Write this number in exponent form.

17. Write these numbers in order from greatest to least.
$3^4, 4^4, 5^3, 2^6$

18. a) Write the next 3 terms in each pattern.
i) 3, 5, 6, 8, 9, …
ii) 1, 2, 4, 8, …
iii) 1, 4, 9, 16, …
iv) 3, 4, 6, 9, …
b) Describe each pattern in part a.

19. a) Copy and complete this pattern.
$1^2 + 2^2 = \square$
$2^2 + 3^2 = \square$
$3^2 + 4^2 = \square$
$4^2 + 5^2 = \square$
b) Write the next two rows in the pattern.
c) Describe the pattern.

20. $1^2 = 1$
$1^2 + 2^2 = 5$
$1^2 + 2^2 + 3^2 = 14$
$1^2 + 2^2 + 3^2 + 4^2 = 30$
a) Write the next two lines in the pattern.
b) What pattern do you see?