

## Chapter 1 - Algebra: Number Patterns and Functions - Mid-Chapter Quiz: Lessons 1-1 through 1-4

1. **BOOKS** Hugo needs to finish reading a 465-page book by Sunday. The number of pages he read each day are shown in the table. How many pages will he need to read on Saturday and Sunday in order to finish the book in time?

Day	size (MB)
Monday	60
Tuesday	72
Wednesday	59
Thursday	85
Friday	67

First add the pages read so far:

$$60 + 72 + 59 + 85 + 67 = 343$$

Next subtract this from the total number of pages.

$$465 - 343 = 122$$

122 is how many more pages Hugo needs to read.

122 pages

2. **MULTIPLE CHOICE** A school has 144 computers for 24 classrooms. How many computers will be in each classroom if each classroom is to have the same number of computers?

- A 6  
B 24  
C 120  
D 3,456

$$144 \div 24 = 6$$

Each class would have 6 computers.

The correct answer is A.

A

**Tell whether each number is *prime*, *composite*, or *neither*.**

3. 57

57 has more than 2 factors, 1, 57, 3, and 19, so it is composite.

composite

4. 97

97 has only 2 factors, 1 and 97, so it is prime.

prime

5. 0

0 is neither prime nor composite.

neither

6. **BOOKS** Can a group of 41 books be placed onto more than one shelf so that each shelf has the same number of books and has more than one book per shelf? Explain your reasoning.

No; 41 is a prime number.

No; 41 is a prime number.

**Write each power as a product of the same factor. Then find the value.**

7.  $3^4$

$$3^4 = 3 \times 3 \times 3 \times 3$$

$$= 81$$

$$3 \times 3 \times 3 \times 3; 81$$

8.  $6^3$

$$6^3 = 6 \times 6 \times 6$$

$$= 216$$

$$6 \times 6 \times 6; 216$$

**Write the prime factorization of each number using exponents.**

9. 22

The prime factorization of 22 is  $2 \times 11$ .

$$2 \times 11$$

10. 40

The prime factorization of 40 is  $2 \times 2 \times 2 \times 5$ . This can be written as  $2^3 \times 5$ .

$$2^3 \times 5$$

11. 75

The prime factorization of 75 is  $3 \times 5 \times 5$ . This can be written as  $3 \times 5^2$ .

$$3 \times 5^2$$

12. **DOGS** The average annual cost for food per dog is about  $3^5$  dollars. What is this cost?

$$3^5 = 3 \times 3 \times 3 \times 3 \times 3$$

$$= 243$$

Therefore, the average annual cost for food per dog is about \$243.

$$\$243$$

**Find the value of each expression. (Lesson 1-4)**

13.  $10 - 6 + 20$

$$10 - 6 + 20 = 4 + 20$$

$$= 24$$

$$24$$

14.  $25 \div (15 - 10) \times 2$

$$\begin{aligned}
 25 \div (15 - 10) \times 2 &= 25 \div 5 \times 2 \\
 &= 5 \times 2 \\
 &= 10
 \end{aligned}$$

10

15.  $3^2 + 32 \div 2$

$$\begin{aligned}
 3^2 + 32 \div 2 &= 9 + 32 \div 2 \\
 &= 9 + 16 \\
 &= 25
 \end{aligned}$$

25

16.  $12 - (4^3 \div 8) + 1$

$$\begin{aligned}
 12 - (4^3 \div 8) + 1 &= 12 - (64 \div 8) + 1 \\
 &= 12 - 8 + 1 \\
 &= 4 + 1 \\
 &= 5
 \end{aligned}$$

5

17. **MULTIPLE CHOICE** Mr. Murphy, his wife, and 4 children, went to the county fair. Admission to the fair was \$7.75 for an adult and \$5.50 for a child. Arrange the problem-solving steps below in the correct order to find the total cost of the tickets.

Step K: Multiply the cost of a child's ticket by the number of children.

Step L: Add the two products together.

Step M: Multiply the cost of an adult ticket by the number of adults.

Step N: Write down the number of adults and the number of children that are going to the county fair.

Which list shows the steps in the correct order?

**F** N, L, M, K

**G** N, M, K, L

**H** K, M, N, L

**J** M, K, N, L

Step N: Write down the number of adults and the number of children that are going to the county fair.

Step M: Multiply the cost of an adult ticket by the number of adults.

Step K: Multiply the cost of a child's ticket by the number of children.

Step L: Add the two products together.

The correct answer is G.

**G**