

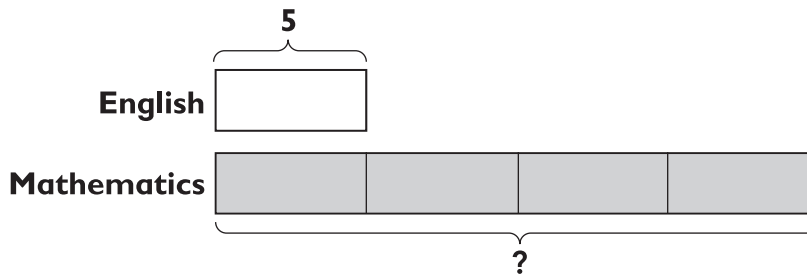
Unit 3 : Multiplication and Division

Friendly Notes

Word Problems

Models can also help us solve multiplication and division word problems.

1. There are 5 English books.
There are 4 times as many mathematics books as English books.
How many mathematics books are there?



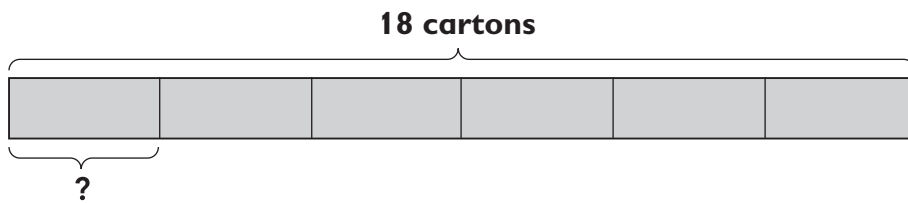
$$5 \times 4 = 20$$

There are 20 Mathematics books.

Multiply 5 by 4.



2. Mrs. Simpson bought 18 cartons of milk.
She gave the milk equally to 6 children.
How many cartons of milk did each child get?



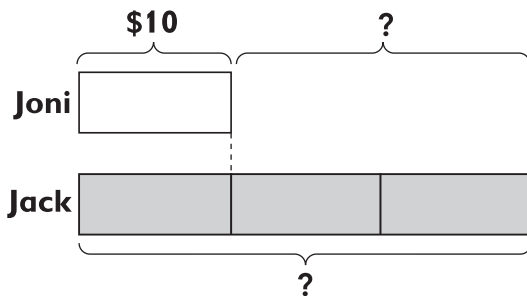
$$18 \div 6 = 3$$

Each child got 3 cartons of milk.

6 units = 18 cartons
1 unit = $18 \div 6$



3. Joni has \$10.
Jack has 3 times as much as Joni.
How much less money does Joni have than Jack?



$$10 \times 3 = 30$$

Jack has \$30.

$$30 - 10 = 20$$

Joni has \$20 less than Jack.

Multiplying Ones, Tens, and Hundreds

To find the **product** of two numbers, we multiply them.

1. (a) Multiply 6 by 3.

$$6 \times 3 = 18$$

$$6 \text{ ones} \times 3 = 18 \text{ ones}$$

(b) Multiply 60 by 3.

$$60 \times 3 = 180$$

$$6 \text{ tens} \times 3 = 18 \text{ tens}$$

(c) Multiply 600 by 3.

$$600 \times 3 = 1,800$$

$$6 \text{ hundreds} \times 3 = 18 \text{ hundreds}$$

To multiply a 2-digit number by a 1-digit number:

Step 1: Multiply the ones by the 1-digit number.

Step 2: Multiply the tens by the 1-digit number.

2. Find the product of 35 and 4.

Multiply the ones by 4.

$$\begin{array}{r} 35 \\ \times 4 \\ \hline 0 \end{array}$$

Multiply the tens by 4.

$$\begin{array}{r} 35 \\ \times 4 \\ \hline 140 \end{array}$$

$$35 \times 4 = 140$$

The **product** of 35 and 4 is 140.

$$\begin{array}{r} 30 \\ 5 \\ \times 4 \\ \hline 120 \\ 20 \\ \hline 140 \end{array}$$



To multiply a 3-digit number by a 1-digit number:
 Step 1: Multiply the ones by the 1-digit number.
 Step 2: Multiply the tens by the 1-digit number.
 Step 3: Multiply the hundreds by the 1-digit number.

3. Multiply 248 by 2.

Multiply the ones by 2.

$$\begin{array}{r} 248 \\ \times \quad 2 \\ \hline 6 \end{array}$$

Multiply the tens by 2.

$$\begin{array}{r} 248 \\ \times \quad 2 \\ \hline 96 \end{array}$$

Multiply the hundreds by 2.

$$\begin{array}{r} 248 \\ \times \quad 2 \\ \hline 496 \end{array}$$

$$248 \times 2 = 496$$

200 × 2 = 400
 40 × 2 = 80
 8 × 2 = 16
 248 × 2
 = 400 + 80 + 16



We can check if our answer is reasonable by estimating the product of the numbers.

4. Estimate the product of 513 and 3.

513 is 500 rounded to the nearest hundred.

$$500 \times 3 = 1,500$$

The product of 513 and 3 is about 1,500.



Quotient and Remainder

When a number cannot be divided by another number exactly, there is a **remainder**.

$$18 \div 7 = 2 \text{ remainder } 4$$

When 18 is divided by 7, the quotient is 2 and the remainder is 4.

$$\begin{aligned} 2 \times 7 &= 14 \\ 14 + 4 &= 18 \end{aligned}$$

