



MULTIPLICATION



SOL 4.4 a,b,d & 4.16 a,b

Vocabulary:

Whole number: a number without fractions that is equal to or greater than 1.

Multiplication: repeated addition

Associative property: the product stays the same when the grouping of factors is changed

Equivalent: the same

Factor: number that is multiplied with other numbers


Identity property: when the number 1 is multiplied with another number, that number stays the same

Number sentence: an equation using numbers and operation symbols

Multiplication Parts

$2 \times 5 = 10$

Factor Factor Product



A cartoon illustration of a boy with brown hair and a red shirt, smiling and holding three large mathematical symbols: a blue plus sign (+), a yellow multiplication sign (x), and a green minus sign (-).

Watch out for the terms *closer to*, *between*, and *a little more than* in word problems indicating estimation.

ESTIMATE

Two ways to estimate:

- Multiply then round
- Round then multiply

Tip: When rounding first, round to the largest



Example 1:
$$\begin{array}{r} 393 \\ \times 61 \\ \hline 23,973 \end{array}$$
 \longrightarrow 30,000

Example 2:
$$\begin{array}{r} 356 \\ \times 61 \\ \hline \end{array}$$
 $\xrightarrow{\text{red arrow}}$ 400 $\xrightarrow{\text{red arrow}}$
$$\begin{array}{r} 400 \\ \times 60 \\ \hline 24,000 \end{array}$$

HOW TO MULTIPLY 2 DIGIT BY 1 DIGIT

$$\begin{array}{r} 23 \\ \times 6 \\ \hline \hline \end{array}$$

$$3 \times 6 = 18$$

put down the 8
and carry the 1

$$\begin{array}{r} 1 \\ 23 \\ \times 6 \\ \hline 8 \end{array}$$

$$2 \times 6 = 12$$

$$12 + 1 = 13$$

Write down the
13

$$\begin{array}{r} 23 \\ \times 6 \\ \hline 138 \end{array}$$

This is your answer

138

HOW TO MULTIPLY 3 DIGIT BY 1 DIGIT

$$\begin{array}{r} 235 \\ \times 6 \\ \hline \hline \end{array}$$

$$5 \times 6 = 30$$

put down the 0
and carry the 3

$$\begin{array}{r} 235 \\ \times 6 \\ \hline 0 \\ \hline \end{array}$$

$$3 \times 6 = 18$$

$$18 + 3 = 21$$

Put down the 1
and carry the 2

$$\begin{array}{r} 235 \\ \times 6 \\ \hline 10 \\ \hline \end{array}$$

$$2 \times 6 = 12$$

$$12 + 2 = 14$$

Put down the 14
and that is the
answer

$$\begin{array}{r} 235 \\ \times 6 \\ \hline 1410 \\ \hline \end{array}$$

This is your answer!
Pretty easy hey?

HOW TO MULTIPLY 2 DIGITS BY 2 DIGITS

$$\begin{array}{r} 4 \\ 37 \\ \times 46 \\ \hline 2 \end{array}$$

Begin by multiplying the top by the number on the bottom right side. This is how!

Multiply 7 and 6. Put down the 2 and carry the 4.

$$\begin{array}{r} 2 \\ 37 \\ \times 46 \\ \hline 222 \\ + 1480 \\ \hline \end{array}$$

Now you need to add the two numbers together. Don't forget to work from right to left and carry when needed!

$$\begin{array}{r} 4 \\ 37 \\ \times 46 \\ \hline 222 \end{array}$$

Multiply 3 and 6. DON'T forget to add the 4 that you carried!

$$\begin{array}{r} 4 \\ 37 \\ \times 46 \\ \hline 222 \\ 0 \end{array}$$

You have finished multiplying everything by 6. Before this, we can cross out the number we have carried (the number 4 at the top). We also have to add the magic '0' in the 'units' column of the next row of our answer lines. **DO NOT FORGET THIS!**

$$\begin{array}{r} 2 \\ 37 \\ \times 46 \\ \hline 222 \\ 1480 \\ \hline 1702 \end{array}$$

It should look like this!

$$\begin{array}{r} 2 \\ 37 \\ \times 46 \\ \hline 222 \\ 80 \end{array}$$

Next you must multiply the top numbers by the number on the bottom left hand side. This is how!

Multiply 7 and 4. Put down the 8 and carry the 2.

$$\begin{array}{r} 2 \\ 37 \\ \times 46 \\ \hline 222 \\ 1480 \end{array}$$

Multiply 3 and 4. DON'T forget to add the 2 that you carried!

HOW TO MULTIPLY

How To Multiply 3 Digit By 2 Digit Numbers

Step 1: Choose a 3 digit number and a 2 digit number

$$\begin{array}{r} 452 \\ \times 13 \\ \hline \end{array}$$

Step 2: Multiply the top number with the ones from the number below

4 multiply 3 is 12 but you kept 1 before so you need to add 1 with 12. So the answer is 13.

$$\begin{array}{r} 1 \\ 452 \\ \times 13 \\ \hline \end{array}$$

5 multiply 3 is 15

2 multiply 3 is 6

Step 3 : You got 452×3 . Now you need to find 452×1 . You need to put the zero below to hold the place.

$$\begin{array}{r} 1 \quad 3 \quad 5 \quad 6 \\ \quad 1 \\ \quad 452 \\ \times \quad 13 \\ \hline 1 \quad 3 \quad 5 \quad 6 \\ 4 \quad 5 \quad 2 \quad 0 \end{array}$$

Associative Property

ASSOCIATIVE PROPERTY

$$(3 \times 2) \times 4 = 3 \times (2 \times 4)$$

$$6 \times (4 \times 3) = (6 \times 4) \times 3$$



ONLY THE PARENTHESES MOVE

()

Key Words for Word Problems



triple

times



double

product of

multiplied by

by

each group

What other
key words
can you think

total

