

Multiplying Two Numbers

Use partial products and place-value with regrouping to multiply.

Use partial products.

Multiply 72×4

Estimate the product
280

72 rounds to 70, $70 \times 4 =$

STEP 1:

Multiply the 2 ones, or 2 by 4.

$$\begin{array}{r} 72 \\ \times 4 \\ \hline \end{array}$$

or

$$\begin{array}{r} 2 \\ \times 4 \\ \hline 8 \end{array}$$

STEP 2:

Multiply the 7 tens, or 70 by
4.

$$\begin{array}{r} 72 \\ \times 4 \\ \hline \end{array}$$

or

$$\begin{array}{r} 70 \\ \times 4 \\ \hline 280 \end{array}$$

STEP 3:

Add the partial products.

$$8 + 280 = 288$$

So, $72 \times 4 = 288$.

Since 288 is close to the estimate of 280, it is reasonable.

Use place value and regrouping.

Multiply 67×5

Estimate the product 67 rounds to 70, $70 \times 5 = 350$

STEP 1:

Multiply the 7 ones by 5.

$$\begin{array}{r} \overset{3}{6}7 \\ \times 5 \\ \hline \end{array}$$

$$5 \times 7 \text{ ones} = 35$$

Regroup the 3 tens

ones

STEP 2:

Multiply the 6 tens 5.

$$\begin{array}{r} \overset{3}{6}7 \\ \times 5 \\ \hline 335 \end{array}$$

$$5 \times 6 \text{ tens} = 30$$

$$\text{tens } 30 \text{ tens} + 3 \text{ tens} = 33$$

tens

So, $67 \times 5 = 335$.

Since 335 is close to the estimate of 350, it is reasonable.

Example:

Estimate. Then record the product.

1) 44×4

$$\begin{array}{r} 40 \times 4 = 160 \\ 4 \times 4 = 16 \\ \hline \end{array}$$

$$44 \times 4 = 160 + 16 = 176$$

2) 79×5

$$\begin{array}{r} 70 \times 5 = 350 \\ 9 \times 5 = 45 \\ \hline \end{array}$$

$$79 \times 5 = 350 + 45 = 395$$

3) 61×3

$$\begin{array}{r} 60 \times 3 = 180 \\ 1 \times 3 = 3 \\ \hline \end{array}$$

$$61 \times 3 = 180 + 3 = 183$$

My Real Life

Hana can type 2 pages in 10 minutes. How many pages can she type after 80 minutes?



$$2 \times 8 = 16 \text{ pages}$$

Examples:

A- Estimate. Then find the product.

1) $124 \rightarrow 120$

$$\begin{array}{r} \times 5 \\ \hline \end{array}$$

7

$$620 \quad 600$$

2) $148 \rightarrow 150$

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

$$592 \quad 600$$

3) $162 \rightarrow 160$

$$\begin{array}{r} \times 7 \\ \hline \end{array}$$

$$1,134 \quad 1,120$$

B- Lina buys a birthday invitation card for 8 dirhams. If she needs to buy 16 cards. How many will she spend?



$$16 \times 8 = 128 \text{ dirhams.}$$

Find a rule for the input/output table. Look at the second column in the table.

Input	a	5	6	2	10	3
Output	b	20	24	8	40	12

THINK: What can you do to 5 to find 20? You could add 15 or multiply by 4.

Look at the next column of the table.

THINK: What can you do to 6 to find 24? You could add 18 or multiply by 4.

THINK: The rule multiply by 4 works for the first two columns.

Check the rule on the other columns.

Does $2 \times 4 = 8$? YES

Does $10 \times 4 = 40$? YES

Does $3 \times 4 = 12$? YES

The rule is multiply by 4. $a \times 4 = b$

The input number, multiplied by 4, equals the output number.