

9 Estimate Products by Rounding

Here's How

Estimate to find each product.

Estimate the product by rounding each factor to the place value of the first digit.

$$\begin{array}{r} 42,351 \rightarrow 40,000 \\ \times \quad 571 \rightarrow \times \quad 600 \end{array} \quad \begin{array}{l} 42,351 \text{ rounds to } 40,000. \\ 571 \text{ rounds to } 600. \end{array}$$

Now use the multiplying by a multiple of 10 shortcut.

▶
$$\begin{array}{r} 40,000 \\ \times \quad 600 \\ \hline 000,000 \end{array}$$
 Count the number of zeros in the factors. There are **6 zeros**. Write them in the answer.

$$\begin{array}{r} 40,000 \\ \times \quad 600 \\ \hline 24,000,000 \end{array}$$

Then, finish the multiplication.
 $4 \times 6 = 24$
 Write the 24 in the answer.

The **estimated product** of 42,351 and 571 is **24,000,000**.

Try These

Estimate each product.

Round to the greatest place value of the first digit.

▶ 1.
$$\begin{array}{r} 584 \rightarrow \\ \times 647 \rightarrow \times \end{array}$$
 2.
$$\begin{array}{r} 4890 \rightarrow \\ \times 621 \rightarrow \times \end{array}$$

3.
$$\begin{array}{r} 48,568 \rightarrow \\ \times 135 \rightarrow \times \end{array}$$
 4.
$$\begin{array}{r} 8486 \rightarrow \\ \times 361 \rightarrow \times \end{array}$$

5.
$$\begin{array}{r} 4862 \rightarrow \\ \times 581 \rightarrow \times \end{array}$$
 6.
$$\begin{array}{r} 71,259 \rightarrow \\ \times 708 \rightarrow \times \end{array}$$

Go Ahead

Estimate each product.

TIP
The number of zeros in the product will be the same as the total number of zeros in the rounded factors.

1.
$$\begin{array}{r} 135 \\ \times 51 \\ \hline \end{array}$$

2.
$$\begin{array}{r} 4581 \\ \times 113 \\ \hline \end{array}$$

3.
$$\begin{array}{r} 72,261 \\ \times 759 \\ \hline \end{array}$$

4.
$$\begin{array}{r} 42,259 \\ \times 438 \\ \hline \end{array}$$

5.
$$\begin{array}{r} 1535 \\ \times 487 \\ \hline \end{array}$$

6.
$$\begin{array}{r} 258 \\ \times 538 \\ \hline \end{array}$$

7.
$$\begin{array}{r} 42,591 \\ \times 559 \\ \hline \end{array}$$

8.
$$\begin{array}{r} 38,848 \\ \times 248 \\ \hline \end{array}$$

9.
$$\begin{array}{r} 2508 \\ \times 953 \\ \hline \end{array}$$

10.
$$\begin{array}{r} 3584 \\ \times 662 \\ \hline \end{array}$$

11.
$$\begin{array}{r} 964 \\ \times 362 \\ \hline \end{array}$$

12.
$$\begin{array}{r} 6542 \\ \times 346 \\ \hline \end{array}$$

13.
$$\begin{array}{r} 57,158 \\ \times 749 \\ \hline \end{array}$$

14.
$$\begin{array}{r} 9548 \\ \times 149 \\ \hline \end{array}$$

15.
$$\begin{array}{r} 829 \\ \times 287 \\ \hline \end{array}$$

16.
$$\begin{array}{r} 847 \\ \times 342 \\ \hline \end{array}$$

17.
$$\begin{array}{r} 68,879 \\ \times 624 \\ \hline \end{array}$$

18.
$$\begin{array}{r} 647 \\ \times 252 \\ \hline \end{array}$$

19.
$$\begin{array}{r} 74,518 \\ \times 924 \\ \hline \end{array}$$

20.
$$\begin{array}{r} 7841 \\ \times 168 \\ \hline \end{array}$$

21.
$$\begin{array}{r} 320 \\ \times 849 \\ \hline \end{array}$$