

Multiplying 3-Digit Numbers

Lesson
11

In Focus



What do we need to calculate?

There are 473 ml in each bottle.



makes a drink by mixing 4 bottles of fruit juice in a container.

How big should the container be?

Let's Learn

1

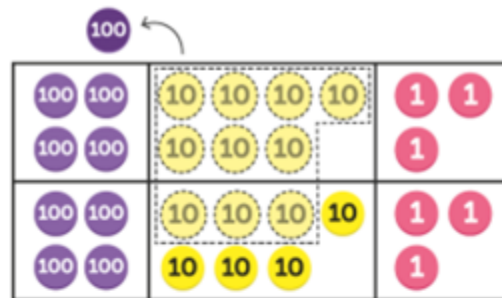
$473 \times 2 =$

100	100	10	10	10	10	1	1
100	100	10	10	10		1	
100	100	10	10	10	10	1	1
100	100	10	10	10		1	



The calculation we need to do is 473×4 . Let's look at different ways we can do this.

$$\begin{array}{r} 473 \\ \times 2 \\ \hline \end{array}$$



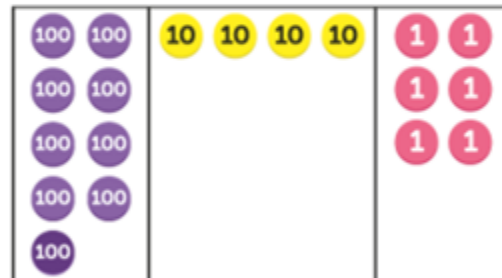
Multiply the ones.

$$\begin{array}{r} 473 \\ \times 2 \\ \hline 6 \end{array}$$

Multiply the tens.

$$\begin{array}{r} 1473 \\ \times 2 \\ \hline 6 \end{array}$$

Why does renaming only happen in the tens?



Multiply the hundreds.

Add the 1 hundred.

$$\begin{array}{r} 1473 \\ \times 2 \\ \hline 6 \end{array}$$

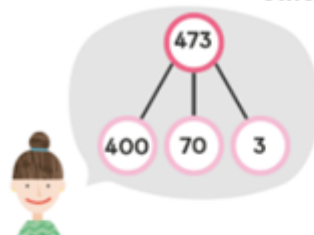
$$473 \times 2 = 946$$

$$\begin{array}{r} 473 \\ \times 2 \\ \hline 6 \\ 140 \\ + 800 \\ \hline 946 \end{array}$$



2 $473 \times 2 = \square$

How does multiplying by 2 help us calculate multiplying by 4?



$$400 \times 2 = 800$$

$$70 \times 2 = 140$$

$$3 \times 2 = 6$$

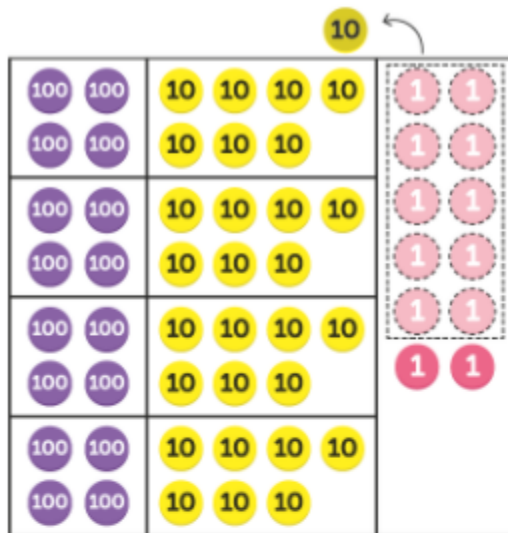
$$473 \times 2 = 946$$

3 $473 \times 4 = \square$

100 100 100 100	10 10 10 10 10 10 10	1 1 1
100 100 100 100	10 10 10 10 10 10 10	1 1 1
100 100 100 100	10 10 10 10 10 10 10	1 1 1
100 100 100 100	10 10 10 10 10 10 10	1 1 1

$$\begin{array}{r} 473 \\ \times 4 \\ \hline \end{array}$$

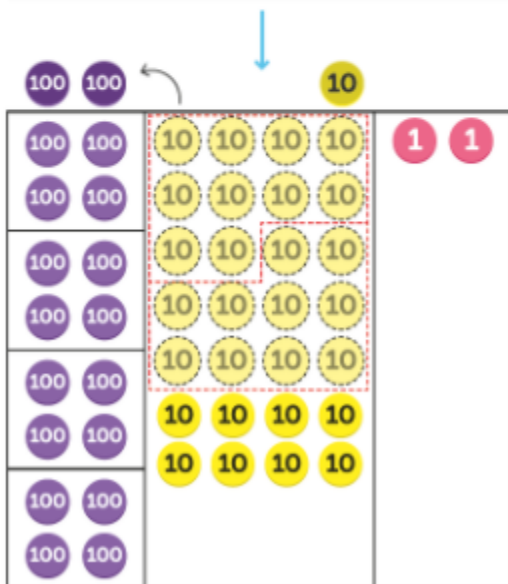




Multiply the ones.

$$\begin{array}{r} 4 \quad \overset{1}{7} \quad 3 \\ \times \quad 4 \\ \hline 2 \end{array}$$

Don't forget to add the 1 ten.



Multiply the tens.

$$\begin{array}{r} \overset{2}{4} \quad \overset{1}{7} \quad 3 \\ \times \quad 4 \\ \hline 9 \quad 2 \end{array}$$

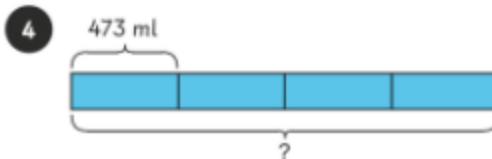


Don't forget to add the 2 hundreds.

Multiply the hundreds.

$$\begin{array}{r} \overset{2}{4} \quad \overset{1}{7} \quad 3 \\ \times \quad 4 \\ \hline 1 \quad 8 \quad 9 \quad 2 \end{array}$$





$$473 \text{ ml} \times 2 = 946 \text{ ml}$$

$$473 \text{ ml} \times 4 = 1892 \text{ ml}$$



mixes 4 bottles, each containing 473 ml of juice.

She needs a container that will hold at least 1892 ml.

How does this image help us? What is this called?

$$\begin{array}{r} 946 \\ + 946 \\ \hline \end{array}$$



Guided Practice

1 Multiply.



(a) $268 \times 3 =$

$200 \times 3 =$

$60 \times 3 =$

$8 \times 3 =$

 $268 \times 3 =$

(b) $7 \times 268 =$

$200 \times 7 =$

$60 \times 7 =$

$8 \times 7 =$

 $268 \times 7 =$



$7 \times 268 = 268 \times 7$

2 Multiply.

(a) $8 \times 532 = \square$

$$\begin{array}{r} 532 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} \\ + \\ \hline \\ \hline \end{array}$$



$8 \times 532 = 532 \times 8$

(b) $425 \times 9 = \square$

$$\begin{array}{r} 425 \\ \times 9 \\ \hline \end{array}$$

3 $\square \square \square \times \square = \square \square \square$

Make one multiplication equation.
The product must be less than 1000.

Is it possible not to repeat any digit in

$\square \square \square \times \square = \square \square \square ?$



Worksheet 11

Multiplying 3-Digit Numbers

1 Multiply to find:

(a) $271 \times 8 =$

$200 \times 8 =$

$70 \times 8 =$

$1 \times 8 =$

+ +

$=$

(b) $345 \times 6 =$

$300 \times 6 =$

$40 \times 6 =$

$5 \times 6 =$

+ +

$=$

(c) $577 \times 5 =$

$500 \times 5 =$

$70 \times 5 =$

$7 \times 5 =$

+ +

$=$

(d) $678 \times 9 =$

$600 \times 9 =$

$70 \times 9 =$

$8 \times 9 =$

+ +

$=$

2 Multiply.

(a)
$$\begin{array}{r} 747 \\ \times 7 \\ \hline \end{array}$$

$$\begin{array}{r} + \\ \hline \end{array}$$

$$747 \times 7 = \boxed{}$$

(b)
$$\begin{array}{r} 564 \\ \times 3 \\ \hline \end{array}$$

$$\begin{array}{r} + \\ \hline \end{array}$$

$$564 \times 3 = \boxed{}$$

(c)
$$\begin{array}{r} 852 \\ \times 4 \\ \hline \end{array}$$

$$\begin{array}{r} + \\ \hline \end{array}$$

$$852 \times 4 = \boxed{}$$

(d)
$$\begin{array}{r} 488 \\ \times 8 \\ \hline \end{array}$$

$$\begin{array}{r} + \\ \hline \end{array}$$

$$488 \times 8 = \boxed{}$$

3 Multiply.

(a) $186 \times 3 = \boxed{}$

(c) $7 \times 366 = \boxed{}$

(e) $633 \times 5 = \boxed{}$

(g) $8 \times 379 = \boxed{}$

(i) $687 \times 9 = \boxed{}$

(b) $4 \times 627 = \boxed{}$

(d) $6 \times 465 = \boxed{}$

(f) $953 \times 2 = \boxed{}$

(h) $9 \times 297 = \boxed{}$

(j) $532 \times 7 = \boxed{}$

Journal activity

In your journal have a go at answering this question. Your answer should contain at least 3 examples, using pictures and diagrams to answer your question. Make sure you finish your journal with an explanation. An example of a good journal is shown in the next slide.

Ch4 L11: There are 8 bags of oranges and each bag weighs 135g. Show 3 different methods you could use to calculate how many oranges there are altogether.

Example of a good journal entry.

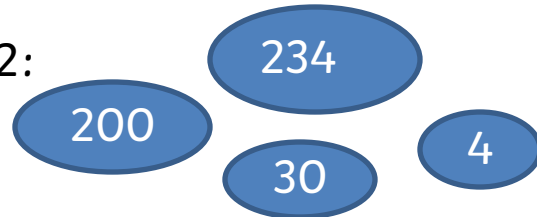
Example: There are 6 cereal boxes, each weighs 234 grams. Using words, pictures and diagrams show three different ways you could calculate how much cereal there is altogether. Explain your findings.

2 2

Method 1: 234
x 6

1404

Method 2:



$$200 \times 6 = 1200$$

$$30 \times 6 = 180$$

$$4 \times 6 = 24$$

$$1200 + 180 + 24 = 1404$$

Method 3:



Explanation: All three methods will calculate the answer to the question. Method 1 is a fast and efficient method. Method 2 allows me to use mental maths to solve the question. It also breaks down the question into easier steps. Method 3 allows me to visualise the problem. This would be a better method for more complicated questions.

Examples of children's journals.

21.9.19

Make a choice between multiplication & division

Question
 $432 \times 10 =$

Advantage

Split

Split

$432 \times 10 = 4320$
 $432 \times 10 = 4320$
 $8640 +$ ✓

Advantage

The split advantage is when you break it down into more manageable number-like tens ✓

Disadvantage

If the number is big it is harder to split like ✓

$468 \times 173 =$

27.9.19

Link an equation to a real life problem

Gareth buys 22 Lego sets each containing 432 bricks. How many lego bricks will Gareth have out of all his sets?

$432 \times 22 = ?$

LEGO

$432 \times 10 = 4320$
 $432 \times 10 = 4320$
 $432 \times 2 = 864$

4320
 $+ 4320$
 $+ 864$
 $\hline 9504$ ✓

How to check:

432
 $\times 22$

$100 \times 22 = 2200$
 10000
 100000

ANSWERS

Multiplying 3-Digit Numbers

1 Multiply to find:

(a) $271 \times 8 =$ 2168

$200 \times 8 =$ 1600

$70 \times 8 =$ 560

$1 \times 8 =$ 8

1600 + 560 + 8

= 2168

(b) $345 \times 6 =$ 2070

$300 \times 6 =$ 1800

$40 \times 6 =$ 240

$5 \times 6 =$ 30

1800 + 240 + 30

= 2070

(c) $577 \times 5 =$ 2885

$500 \times 5 =$ 2500

$70 \times 5 =$ 350

$7 \times 5 =$ 35

2500 + 350 + 35

= 2885

(d) $678 \times 9 =$ 6102

$600 \times 9 =$ 5400

$70 \times 9 =$ 630

$8 \times 9 =$ 72

5400 + 630 + 72

= 6102

2 Multiply.

$$\begin{array}{r}
 \text{(a)} \quad \begin{array}{r} 747 \\ \times 7 \\ \hline 49 \\ 280 \\ 4900 \\ \hline 5229 \end{array} \\
 747 \times 7 = \boxed{5229}
 \end{array}$$

$$\begin{array}{r}
 \text{(b)} \quad \begin{array}{r} 564 \\ \times 3 \\ \hline 12 \\ 180 \\ 1500 \\ \hline 1692 \end{array} \\
 564 \times 3 = \boxed{1692}
 \end{array}$$

$$\begin{array}{r}
 \text{(c)} \quad \begin{array}{r} 852 \\ \times 4 \\ \hline 8 \\ 200 \\ 3200 \\ \hline 3408 \end{array} \\
 852 \times 4 = \boxed{3408}
 \end{array}$$

$$\begin{array}{r}
 \text{(d)} \quad \begin{array}{r} 488 \\ \times 8 \\ \hline 64 \\ 640 \\ 3200 \\ \hline 3904 \end{array} \\
 488 \times 8 = \boxed{3904}
 \end{array}$$

3 Multiply.

$$\begin{array}{l}
 \text{(a)} \quad 186 \times 3 = \boxed{558} \\
 \text{(c)} \quad 7 \times 366 = \boxed{2562} \\
 \text{(e)} \quad 633 \times 5 = \boxed{3165} \\
 \text{(g)} \quad 8 \times 379 = \boxed{3032} \\
 \text{(i)} \quad 687 \times 9 = \boxed{6183}
 \end{array}$$

$$\begin{array}{l}
 \text{(b)} \quad 4 \times 627 = \boxed{2508} \\
 \text{(d)} \quad 6 \times 465 = \boxed{2790} \\
 \text{(f)} \quad 953 \times 2 = \boxed{1906} \\
 \text{(h)} \quad 9 \times 297 = \boxed{2673} \\
 \text{(j)} \quad 532 \times 7 = \boxed{3724}
 \end{array}$$