
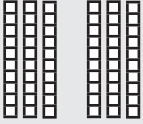
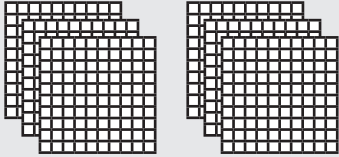


# NS5-15 Multiplying by Multiples of 10, 100, and 1000

<p>To multiply <math>2 \times 3</math>, make 2 groups of 3 ones blocks (3 ones = 3).</p> <div style="text-align: center;">  </div> <p><math>2 \times 3 = 2 \times 3</math> ones = 6 ones = 6</p> <p>Notice the pattern: <math>2 \times 3 = 6</math></p>	<p>To multiply <math>2 \times 30</math>, make 2 groups of 3 tens blocks (3 tens = 30).</p> <div style="text-align: center;">  </div> <p><math>2 \times 30 = 2 \times 3</math> tens = 6 tens = 60</p> <p><math>2 \times 30 = 60</math></p>	<p>To multiply <math>2 \times 300</math>, make 2 groups of 3 hundreds blocks (3 hundreds = 300).</p> <div style="text-align: center;">  </div> <p><math>2 \times 300 = 2 \times 3</math> hundreds = 6 hundreds = 600</p> <p><math>2 \times 300 = 600</math></p>
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1. Draw a model for the multiplication. Then calculate the answer.

a)  $3 \times 40$

b)  $3 \times 50$



$3 \times 40 = 3 \times 4$  tens = 12 tens = 120

$3 \times 50 = 3 \times$  \_\_\_ tens = \_\_\_ tens = \_\_\_

2. Regroup to find the answer.

a)  $2 \times 70 = 2 \times 7$  tens = 14 tens = 140

b)  $4 \times 50 = 4 \times$  \_\_\_ tens = \_\_\_ tens = \_\_\_

c)  $6 \times 40 = 6 \times$  \_\_\_ tens = \_\_\_ tens = \_\_\_

d)  $8 \times 30 = 8 \times$  \_\_\_ tens = \_\_\_ tens = \_\_\_

3. Complete the pattern.

a)  $2 \times 4 =$  \_\_\_\_\_

b)  $9 \times 1 =$  \_\_\_\_\_

c)  $8 \times 2 =$  \_\_\_\_\_

d)  $3 \times 3 =$  \_\_\_\_\_

$2 \times 40 =$  \_\_\_\_\_

$9 \times 10 =$  \_\_\_\_\_

$8 \times 20 =$  \_\_\_\_\_

$3 \times 30 =$  \_\_\_\_\_

$2 \times 400 =$  \_\_\_\_\_

$9 \times 100 =$  \_\_\_\_\_

$8 \times 200 =$  \_\_\_\_\_

$3 \times 300 =$  \_\_\_\_\_

4. Multiply.

a)  $2 \times 40 =$  \_\_\_\_\_

b)  $3 \times 50 =$  \_\_\_\_\_

c)  $6 \times 30 =$  \_\_\_\_\_

d)  $4 \times 50 =$  \_\_\_\_\_

e)  $8 \times 100 =$  \_\_\_\_\_

f)  $5 \times 300 =$  \_\_\_\_\_

g)  $4 \times 300 =$  \_\_\_\_\_

h)  $2 \times 600 =$  \_\_\_\_\_

i)  $7 \times 50 =$  \_\_\_\_\_

j)  $5 \times 60 =$  \_\_\_\_\_

k)  $9 \times 20 =$  \_\_\_\_\_

l)  $2 \times 800 =$  \_\_\_\_\_

**5.** Draw a base ten model to show  $2 \times 300$ .

**6.** You know that  $6 \times 3 = 18$ . How can you use this fact to multiply  $6 \times 300$ ?

**REMINDER ▶**

$$10 \times \square = \text{rod}$$

$$10 \times 1 \text{ one} = 1 \text{ ten}$$

$$10 \times \text{rod} = \text{square}$$

$$10 \times 1 \text{ ten} = 1 \text{ hundred}$$

$$10 \times \text{square} = \text{cube}$$

$$10 \times 1 \text{ hundred} = 1 \text{ thousand}$$

7. Draw a model for the multiplication. Then calculate the answer.

a)  $10 \times 20 = 10 \times \text{two rods} = \text{two squares} = \underline{\quad 200 \quad}$

b)  $10 \times 300 = 10 \times \text{three squares} = \text{three cubes} = \underline{\quad \quad \quad}$

c)  $10 \times 6 = 10 \times \text{six ones} = \underline{\quad \quad \quad}$

d)  $10 \times 5 = \underline{\quad \quad \quad}$

e)  $10 \times 50 = \underline{\quad \quad \quad}$

f)  $10 \times 500 = \underline{\quad \quad \quad}$

g)  $10 \times 5000 = \underline{\quad \quad \quad}$

8. Multiply.

a)  $10 \times 4 = \underline{\quad \quad \quad}$

b)  $10 \times 70 = \underline{\quad \quad \quad}$

c)  $10 \times 80 = \underline{\quad \quad \quad}$

d)  $10 \times 600 = \underline{\quad \quad \quad}$

e)  $10 \times 8 = \underline{\quad \quad \quad}$

f)  $10 \times 900 = \underline{\quad \quad \quad}$

**BONUS ▶**

g)  $10 \times 20\,000 = \underline{\quad \quad \quad}$

h)  $60\,000 \times 10 = \underline{\quad \quad \quad}$

$$10 \times 3 = 30$$

$$100 \times 13 = 1300$$

$$1000 \times 13 = 13\,000$$

9. Use the pattern in the grey box to multiply.

a)  $10 \times 14 = \underline{\quad \quad \quad}$

b)  $100 \times 17 = \underline{\quad \quad \quad}$

c)  $10 \times 21 = \underline{\quad \quad \quad}$

d)  $100 \times 42 = \underline{\quad \quad \quad}$

e)  $100 \times 87 = \underline{\quad \quad \quad}$

f)  $100 \times 28 = \underline{\quad \quad \quad}$

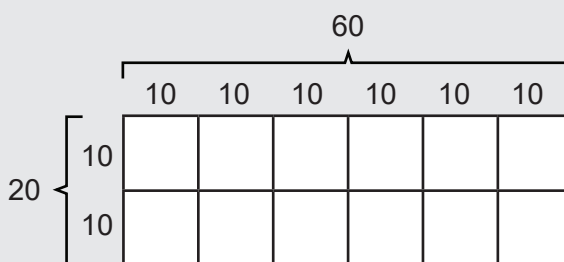
**BONUS ▶**

g)  $43 \times 1000 = \underline{\quad \quad \quad}$

h)  $1000 \times 135 = \underline{\quad \quad \quad}$

$$20 = 2 \times 10 \quad 60 = 6 \times 10$$

$$\begin{aligned} \text{So, } 20 \times 60 &= (2 \times 10) \times (6 \times 10) \\ &= (2 \times 6) \times (10 \times 10) \\ &= 12 \times 100 \\ &= 1200 \end{aligned}$$



### 10. Multiply.

$$\begin{aligned} \text{a) } 30 \times 40 &= (3 \times 10) \times (4 \times 10) \\ &= (3 \times 4) \times (10 \times 10) \\ &= 12 \times \underline{100} \\ &= \underline{1200} \end{aligned}$$

$$\begin{aligned} \text{b) } 20 \times 70 &= (2 \times 10) \times (7 \times 10) \\ &= (2 \times 7) \times (10 \times 10) \\ &= \underline{\quad} \times \underline{\quad} \\ &= \underline{\quad} \end{aligned}$$

$$\begin{aligned} \text{c) } 20 \times 400 &= (2 \times 10) \times (4 \times 100) \\ &= (2 \times 4) \times (10 \times 100) \\ &= 8 \times \underline{1000} \\ &= \underline{8000} \end{aligned}$$

$$\begin{aligned} \text{d) } 40 \times 400 &= (4 \times 10) \times (4 \times 100) \\ &= (4 \times 4) \times (10 \times 100) \\ &= \underline{\quad} \times \underline{\quad} \\ &= \underline{\quad} \end{aligned}$$

Follow the steps to multiply  $40 \times 60$ :

**Step 1:** Multiply  $4 \times 6 = 24$ .

**Step 2:** Write all the zeros from **40** and **60**.  $\longrightarrow 40 \times 60 = 2400$

### 11. Multiply the one-digit numbers to find the product of the tens and hundreds.

a) $8 \times 3 = \underline{24}$	b) $4 \times 3 = \underline{\quad}$	c) $5 \times 7 = \underline{\quad}$
$800 \times 30 = \underline{24\,000}$	$40 \times 300 = \underline{\quad}$	$500 \times 70 = \underline{\quad}$
d) $2 \times 6 = \underline{\quad}$	e) $4 \times 9 = \underline{\quad}$	f) $8 \times 5 = \underline{\quad}$
$20 \times 600 = \underline{\quad}$	$400 \times 90 = \underline{\quad}$	$80 \times 500 = \underline{\quad}$

**BONUS** ► Estimate  $5821 \times 3926$  by rounding each number first.  $6000 \times 4000 = \underline{\quad}$

**12.** At the provincial school track meet there will be 30 schools competing with 20 students from each school. How many students will be competing?

## NS5-16 Easier Ways to Multiply

To double 42, write  $42 = 40 + 2$ . So, the double of  $42 = \text{double } 40 + \text{double } 2 = 80 + 4 = 84$ .

- To double the number mentally, double the ones digit and the tens digit separately.
  - double 42 is 84
  - double 41 is \_\_\_\_\_
  - double 21 is \_\_\_\_\_
  - double 23 is \_\_\_\_\_
  - double 51 is \_\_\_\_\_
  - double 34 is \_\_\_\_\_
- To double the number, double the ones and tens separately and add the result.
  - double 17 is  $20 + 14 = 34$
  - double 27 is \_\_\_\_\_
  - double 38 is \_\_\_\_\_
  - double 25 is \_\_\_\_\_
  - double 35 is \_\_\_\_\_
  - double 55 is \_\_\_\_\_

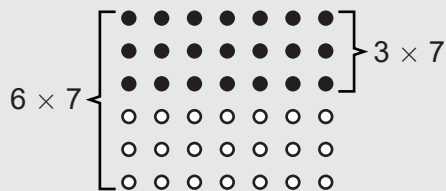
To find  $4 \times 23$ , Anton doubles 23 twice:

Double 23 is 46, and double 46 is  $80 + 12 = 92$ . So  $23 \times 4$  is 92.

- Double twice to find the answer.
 

<ol style="list-style-type: none"> <li><math>4 \times 13</math> Double 13 is <u>26</u>, and double <u>26</u> is <u><math>40 + 12 = 52</math></u>. So <math>4 \times 13</math> is <u>52</u>.</li> <li><math>4 \times 36</math> Double 36 is _____, and double _____ is _____. So <math>4 \times 36</math> is _____.</li> <li><math>4 \times 57</math> Double 57 is _____, and double _____ is _____. So <math>4 \times 57</math> is _____.</li> </ol>	<ol style="list-style-type: none"> <li><math>4 \times 16</math> Double 16 is <u><math>20 + 12 =</math></u> _____, and double _____ is _____. So <math>4 \times 16</math> is _____.</li> <li><math>4 \times 48</math> Double 48 is _____, and double _____ is _____. So <math>4 \times 48</math> is _____.</li> <li><math>4 \times 76</math> Double 76 is _____, and double _____ is _____. So <math>4 \times 76</math> is _____.</li> </ol>
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If you already know 3 times a number, you can double it to find 6 times the number.



$$3 \times 7 = 21$$

$$\text{so } 6 \times 7 = 42 \leftarrow \text{double } 21 = 42$$

4. Double 3 times the number to find 6 times the number.

a)  $3 \times 4 = \underline{\hspace{2cm}}$

so  $6 \times 4 = \underline{\hspace{2cm}}$

d)  $3 \times 6 = \underline{\hspace{2cm}}$

so  $6 \times 6 = \underline{\hspace{2cm}}$

**BONUS ►**

g)  $3 \times 111 = \underline{\hspace{2cm}}$

so  $6 \times 111 = \underline{\hspace{2cm}}$

b)  $3 \times 7 = \underline{\hspace{2cm}}$

so  $6 \times 7 = \underline{\hspace{2cm}}$

e)  $3 \times 5 = \underline{\hspace{2cm}}$

so  $6 \times 5 = \underline{\hspace{2cm}}$

h)  $3 \times 1111 = \underline{\hspace{2cm}}$

so  $6 \times 1111 = \underline{\hspace{2cm}}$

c)  $3 \times 8 = \underline{\hspace{2cm}}$

so  $6 \times 8 = \underline{\hspace{2cm}}$

f)  $3 \times 9 = \underline{\hspace{2cm}}$

so  $6 \times 9 = \underline{\hspace{2cm}}$

i)  $3 \times 111\ 111 = \underline{\hspace{2cm}}$

so  $6 \times 111\ 111 = \underline{\hspace{2cm}}$

5. Double 2 times the number to find 4 times the number. Then find 8 times the number by doubling again.

a)  $2 \times 6 = \underline{\hspace{2cm}}$

so  $4 \times 6 = \underline{\hspace{2cm}}$

and  $8 \times 6 = \underline{\hspace{2cm}}$

d)  $2 \times 9 = \underline{\hspace{2cm}}$

so  $4 \times 9 = \underline{\hspace{2cm}}$

and  $8 \times 9 = \underline{\hspace{2cm}}$

b)  $2 \times 8 = \underline{\hspace{2cm}}$

so  $4 \times 8 = \underline{\hspace{2cm}}$

and  $8 \times 8 = \underline{\hspace{2cm}}$

e)  $2 \times 12 = \underline{\hspace{2cm}}$

so  $4 \times 12 = \underline{\hspace{2cm}}$

and  $8 \times 12 = \underline{\hspace{2cm}}$

c)  $2 \times 7 = \underline{\hspace{2cm}}$

so  $4 \times 7 = \underline{\hspace{2cm}}$

and  $8 \times 7 = \underline{\hspace{2cm}}$

**BONUS ►**  $2 \times 120 = \underline{\hspace{2cm}}$

so  $4 \times 120 = \underline{\hspace{2cm}}$

and  $8 \times 120 = \underline{\hspace{2cm}}$

6. Double 3 times the number to find 6 times the number. Then find 12 times the number.

a)  $3 \times 7 = \underline{\hspace{2cm}}$

so  $6 \times 7 = \underline{\hspace{2cm}}$

and  $12 \times 7 = \underline{\hspace{2cm}}$

b)  $3 \times 5 = \underline{\hspace{2cm}}$

so  $6 \times 5 = \underline{\hspace{2cm}}$

and  $12 \times 5 = \underline{\hspace{2cm}}$

**BONUS ►**  $3 \times 50 = \underline{\hspace{2cm}}$

so  $6 \times 50 = \underline{\hspace{2cm}}$

and  $12 \times 50 = \underline{\hspace{2cm}}$

7. Use doubling to find 16 times the number.

a) 3

$\underline{\hspace{2cm}} \quad 2 \times 3 = 6$

$\underline{\hspace{2cm}} \quad 4 \times 3 = 12$

$\underline{\hspace{2cm}} \quad 8 \times 3 = 24$

$\underline{\hspace{2cm}} \quad 16 \times 3 = 48$

b) 9

$\underline{\hspace{2cm}}$

$\underline{\hspace{2cm}}$

$\underline{\hspace{2cm}}$

$\underline{\hspace{2cm}}$

c) 17

$\underline{\hspace{2cm}}$

$\underline{\hspace{2cm}}$

$\underline{\hspace{2cm}}$

$\underline{\hspace{2cm}}$

**BONUS ►** Use your answer to Question 7.a) to find  $32 \times 3$ .  $\underline{\hspace{2cm}}$

8. Use doubling to calculate the total cost mentally.

- a) 4 hair clips for 42¢ each \_\_\_\_\_
- b) 4 pencils for 37¢ each \_\_\_\_\_
- c) 8 stickers for 7¢ each \_\_\_\_\_
- d) 8 bookmarks for 9¢ each \_\_\_\_\_
- e) 16 marbles for 11¢ each \_\_\_\_\_
- f) 16 tickets for \$14 each \_\_\_\_\_



**BONUS ▶** Use doubling to find  $128 \times 13$ . Hint: Write the steps as you did in Question 7.

9. Use doubling and halving to find the product.

- a)  $5 \times 46 = \underline{10} \times \underline{23} = \underline{230}$
- b)  $5 \times 68 = \underline{\quad} \times \underline{\quad} = \underline{\quad}$
- c)  $5 \times 482 = \underline{\quad} \times \underline{\quad} = \underline{\quad}$
- d)  $5 \times 866 = \underline{\quad} \times \underline{\quad} = \underline{\quad}$
- e)  $50 \times 48 = \underline{\quad} \times \underline{\quad} = \underline{\quad}$
- f)  $500 \times 86 = \underline{\quad} \times \underline{\quad} = \underline{\quad}$

**BONUS ▶**

Mandy puts pairs that make a multiple of 10 together to find the product mentally:

$$5 \times 13 \times 2 = \underbrace{5 \times 2}_{10} \times 13 = 10 \times 13 = 130$$

$$4 \times 16 \times 5 = \underbrace{4 \times 5}_{20} \times 16 = 20 \times 16 = 320$$

10. Multiply by finding a multiple of 10.

- a)  $5 \times 31 \times 4 = \underline{5 \times 4 \times 31}$   
 $= \underline{20 \times 31}$   
 $= \underline{620}$
- b)  $6 \times 22 \times 5 = \underline{\quad}$   
 $= \underline{\quad}$   
 $= \underline{\quad}$
- c)  $2 \times 39 \times 5 = \underline{\quad}$   
 $= \underline{\quad}$   
 $= \underline{\quad}$
- d)  $8 \times 12 \times 5 = \underline{\quad}$   
 $= \underline{\quad}$   
 $= \underline{\quad}$

**BONUS ▶**

- e)  $20 \times 39 \times 5 = \underline{\quad}$   
 $= \underline{\quad}$   
 $= \underline{\quad}$
- f)  $2 \times 39 \times 50 = \underline{\quad}$   
 $= \underline{\quad}$   
 $= \underline{\quad}$

# NS5-17 Arrays and Multiplication

This is how Alexa multiplies  $5 \times 23$ :

She writes 23 as a sum:  $23 = 20 + 3$

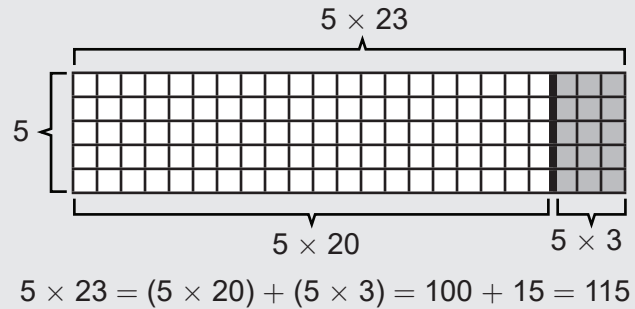
She multiplies 5 by 20:  $5 \times 20 = 100$

She multiplies 5 by 3:  $5 \times 3 = 15$

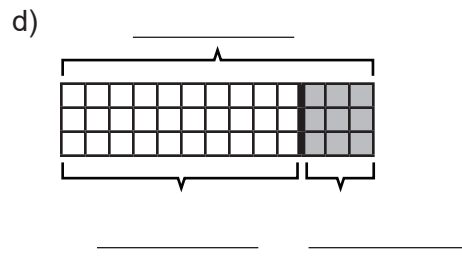
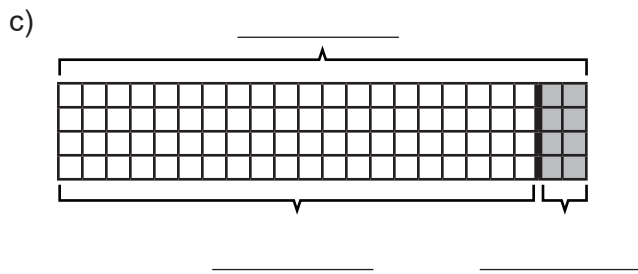
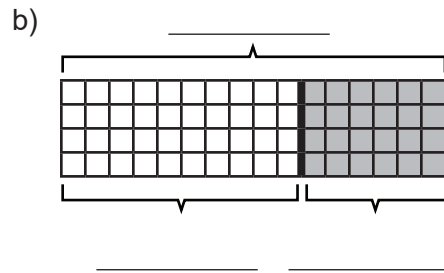
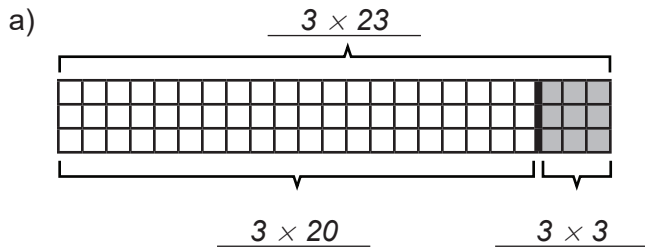
She adds the two results:  $100 + 15 = 115$

Alexa concludes that  $5 \times 23 = 115$ .

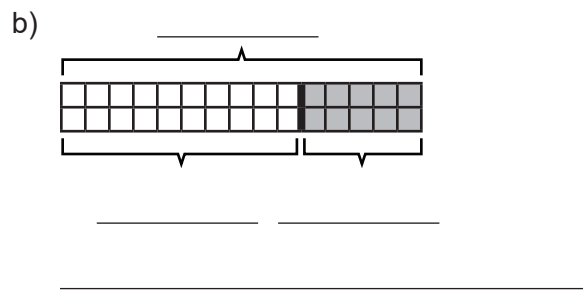
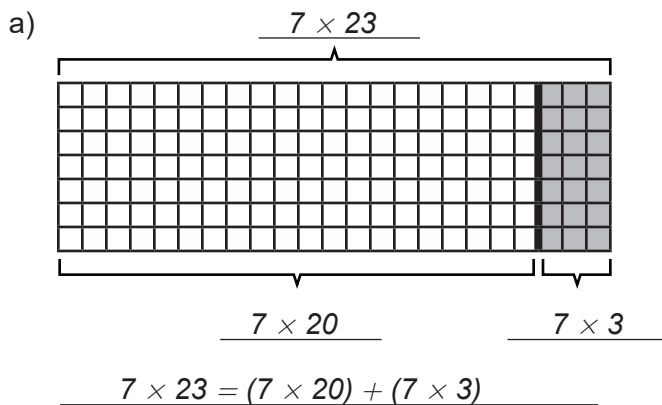
This picture shows why Alexa's method works:

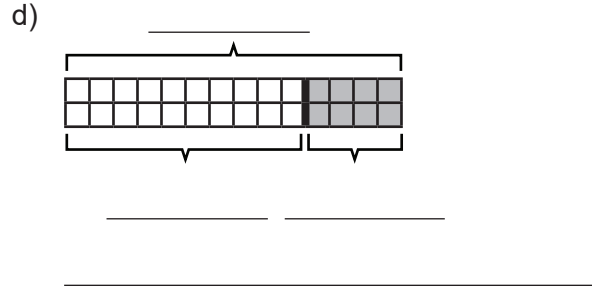
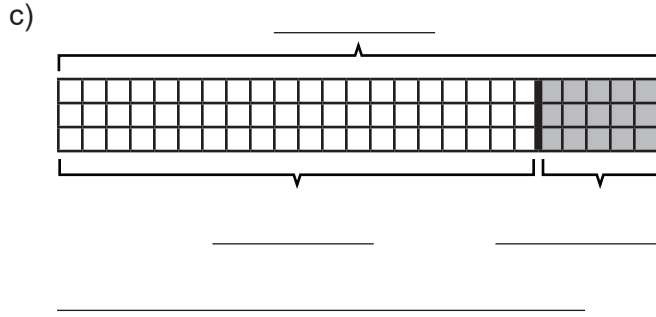


1. Write a product for the whole array and for each part of the array.

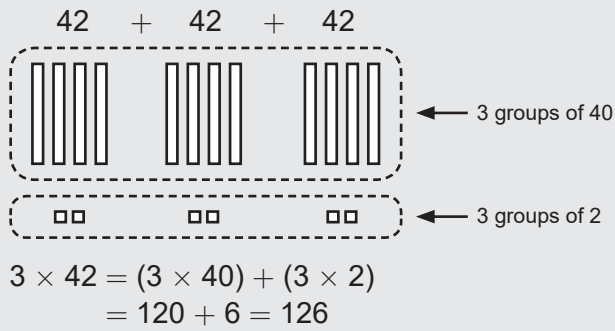


2. Fill in the blanks as shown.

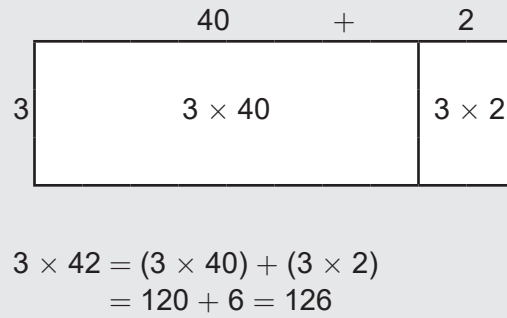




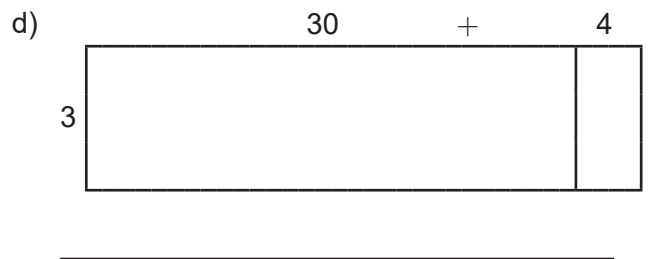
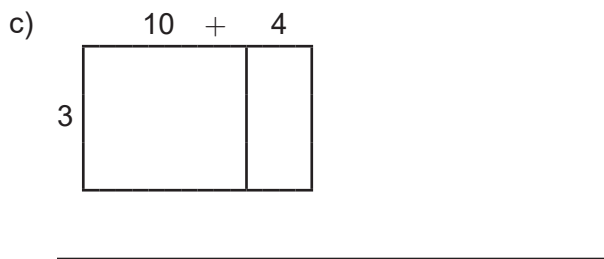
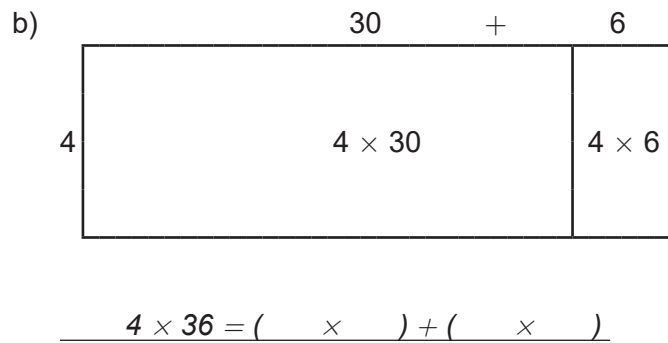
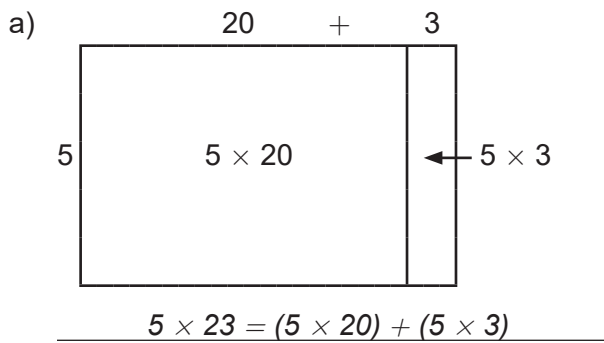
To multiply  $3 \times 42$ , Lewis draws:



Dory draws:



3. Use the picture to write a multiplication as a sum.



4. Rewrite the product in expanded form.

a)  $4 \times 62 = (4 \times \underline{60}) + (4 \times \underline{2})$

b)  $2 \times 73 = (2 \times \underline{\quad}) + (2 \times \underline{\quad})$

c)  $5 \times 41 = (5 \times \underline{\quad}) + (5 \times \underline{\quad})$

d)  $3 \times 32 = (3 \times \underline{\quad}) + (3 \times \underline{\quad})$

e)  $2 \times 84 = (\underline{\quad} \times \underline{\quad}) + (\underline{\quad} \times \underline{\quad})$

f)  $5 \times 91 = (\underline{\quad} \times \underline{\quad}) + (\underline{\quad} \times \underline{\quad})$

g)  $3 \times 52 = \underline{\quad}$

h)  $2 \times 64 = \underline{\quad}$



5. Rewrite the product in expanded form. Find the product.

$$\begin{aligned} \text{a) } 2 \times 23 &= (2 \times 20) + (2 \times 3) \\ &= 40 + 6 \\ &= 46 \end{aligned}$$

$$\begin{aligned} \text{b) } 4 \times 62 &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

$$\begin{aligned} \text{c) } 3 \times 72 &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

$$\begin{aligned} \text{d) } 9 \times 91 &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

$$\begin{aligned} \text{e) } 7 \times 26 &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

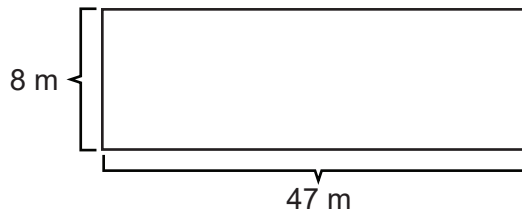
$$\begin{aligned} \text{f) } 5 \times 67 &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

$$\begin{aligned} \text{g) } 8 \times 52 &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

$$\begin{aligned} \text{h) } 9 \times 33 &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \end{aligned}$$

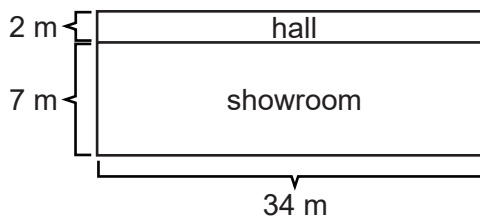
6. A construction company is cutting a hole in the road to replace a section of water pipe. The dimensions of the hole are shown. Write the product in expanded form and solve.

$$\begin{aligned} 8 \times 47 &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \text{ m}^2 \end{aligned}$$



7. A store owner wants to carpet one of her showrooms and the hallway beside it. The dimensions of the showroom and hallway are shown. Write the product in expanded form and solve.

$$\begin{aligned} 9 \times 34 &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \\ &= \underline{\hspace{2cm}} \text{ m}^2 \end{aligned}$$



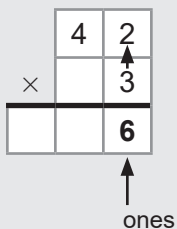
8. A community centre needs a cover for their swimming pool. The dimensions must be 7 m by 56 m. Write the dimensions as a product in expanded form and solve.

# NS5-18 The Standard Method for Multiplication

How to solve  $3 \times 42 = (3 \times 40) + (3 \times 2)$   
 $= (3 \times 4 \text{ tens}) + (3 \times 2 \text{ ones})$

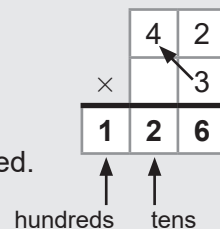
### Step 1:

Multiply the ones digit by 3  
 $(3 \times 2 \text{ ones} = 6 \text{ ones})$ .



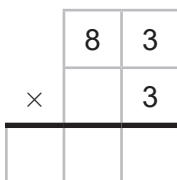
### Step 2:

Multiply the tens digit by 3  
 $(3 \times 4 \text{ tens} = 12 \text{ tens})$ .  
 Regroup 10 tens as 1 hundred.

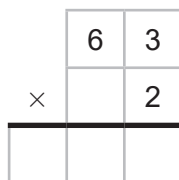


## 1. Multiply.

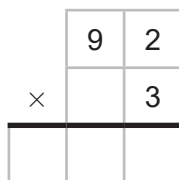
a)



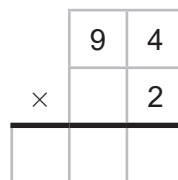
b)



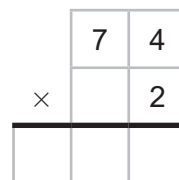
c)



d)



e)



How to solve with regrouping  $7 \times 53 = (7 \times 50) + (7 \times 3)$   
 $= (7 \times 5 \text{ tens}) + (7 \times 3 \text{ ones})$

### Step 1:

Multiply 3 ones by 7  
 $(7 \times 3 = 21)$ .

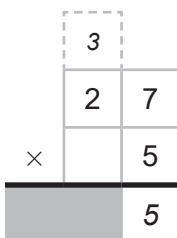


### Step 2:

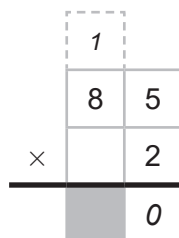
Regroup 20 ones as 2 tens.

## 2. Multiply the ones digits and regroup.

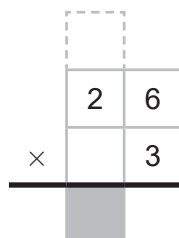
a)



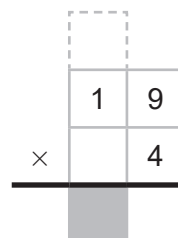
b)



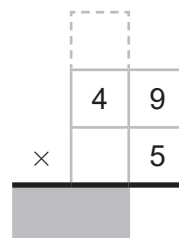
c)



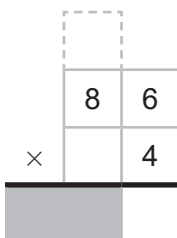
d)



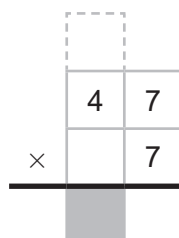
e)



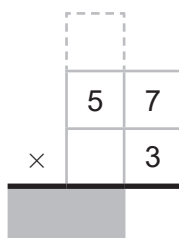
f)



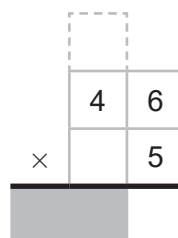
g)



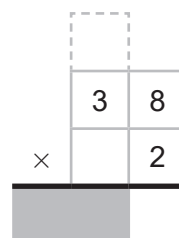
h)



i)



j)

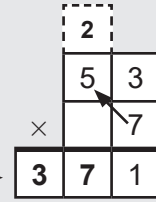


**Step 3:**

Multiply 5 tens by 7  
( $7 \times 5 \text{ tens} = 35 \text{ tens}$ ).

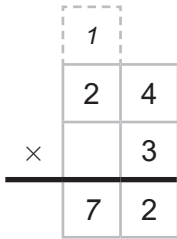
**Step 4:**

Add 2 tens to the result  
( $35 + 2 = 37 \text{ tens}$ ).

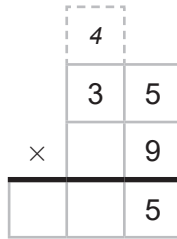


3. Complete the multiplication using **Steps 3 and 4**.

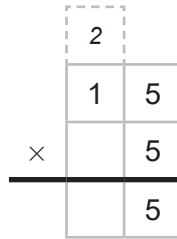
a)



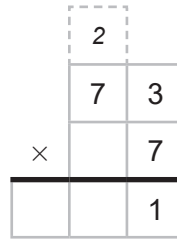
b)



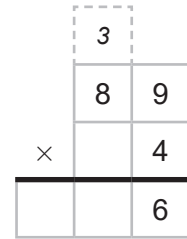
c)



d)

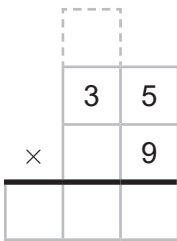


e)

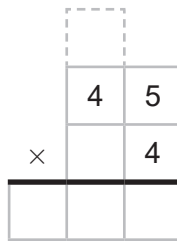


4. Complete **all steps** of the multiplication.

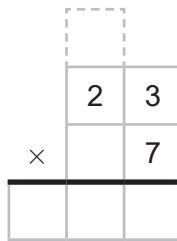
a)



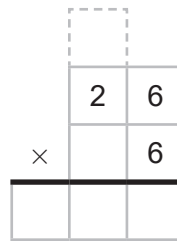
b)



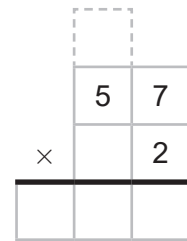
c)



d)

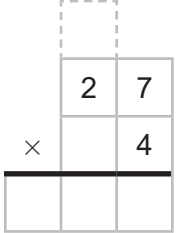


e)

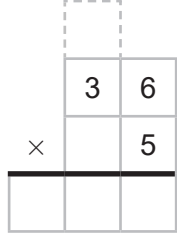


5. Multiply.

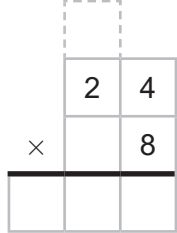
a)



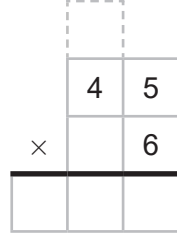
b)



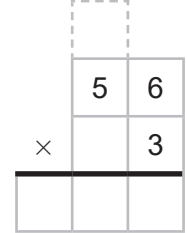
c)



d)

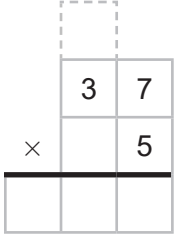


e)

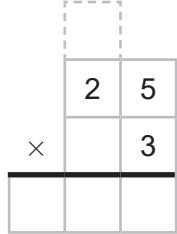


6. Multiply. Regroup when you need to.

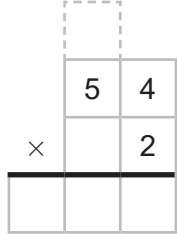
a)



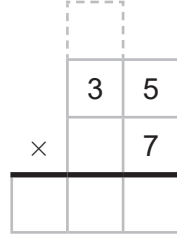
b)



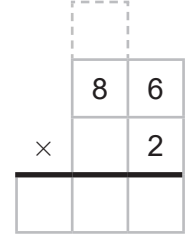
c)



d)



e)



7. Mary wants to give 5 flowers to each of her 12 friends. Multiply using a grid to determine how many flowers she needs.

8. A square is painted on the ground in the schoolyard. All four sides are 15 m long. Multiply using a grid to determine the total length of the sides.

# NS5-19 Multiplying Large Numbers by 1-Digit Numbers

Kelly multiplies  $2 \times 213$  in three ways.

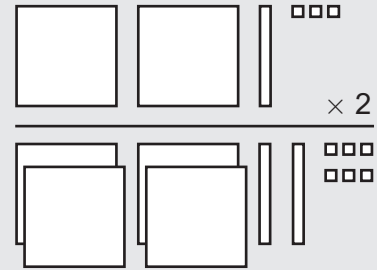
With a chart:

	hundreds	tens	ones
	2	1	3
$\times$			2
	4	2	6

In expanded form:

$$\begin{array}{r} 200 + 10 + 3 \\ \times 2 \\ \hline = 400 + 20 + 6 \\ = 426 \end{array}$$

With base ten materials:



1. Rewrite the multiplication in expanded form. Then multiply.

a)  $213 \quad \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$   
 $\times 3 \quad \hspace{10em} \times 3$   
 $\hline$   
 $= \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$   
 $= \underline{\hspace{1cm}}$

b)  $342 \quad \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$   
 $\times 2 \quad \hspace{10em} \times 2$   
 $\hline$   
 $= \underline{\hspace{1cm}} + \underline{\hspace{1cm}} + \underline{\hspace{1cm}}$   
 $= \underline{\hspace{1cm}}$

2. Multiply.

a) 

1	3	4
$\times$		2

b) 

3	1	2
$\times$		3

c) 

2	1	2
$\times$		4

d) 

2	3	3
$\times$		3

e) 

3	1	4
$\times$		2

3. Multiply by regrouping ones as tens.

a) 

1	2	3
$\times$		4

b) 

3	2	5
$\times$		3

c) 

1	1	4
$\times$		5

d) 

1	1	2
$\times$		6

e) 

1	1	3
$\times$		7

4. Multiply by regrouping tens as hundreds.

a) 

2	4	1
$\times$		4

b) 

1	7	1
$\times$		5

c) 

1	3	2
$\times$		4

d) 

1	2	1
$\times$		8

e) 

2	5	3
$\times$		3

5. Use grid paper to multiply. Regroup as necessary.

a)  $437 \times 2$

b)  $156 \times 4$

c)  $114 \times 6$

d)  $232 \times 4$

e)  $187 \times 3$

Sometimes, you need to regroup hundreds as thousands. When there are no other thousands, you don't need to show the regrouping on top—you can put the regrouping in the answer right away.

Example:

	5	1	2
×			4
2	0	4	8

6. Multiply by regrouping where necessary.

a)

	8	3	4
×			2

b)

	2	9	1
×			3

c)

	8	3	1
×			5

d)

	9	0	6
×			4

e)

	2	2	7
×			4

7. Multiply. You may need to regroup more than once.

a)

	1	3	
	8	3	6
×			5
4	1	8	0

b)

	6	3	1
×			7

c)

	2	6	4
×			6

d)

	3	7	8
×			3

e)

	1	5	3
×			9

8. Multiply by regrouping where necessary.

a)

	6	8	1
×			3

b)

	2	7	0
×			6

c)

	9	6	5
×			7

d)

	8	0	5
×			8

e)

	9	6	1
×			3

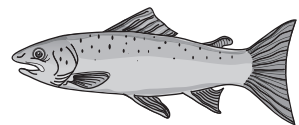
f)

	9	7	2
×			8

**BONUS ▶**

	5	8	4	3	9	0	2	1	6	8							
×																	7

**BONUS ▶** For some species of salmon, a female lays 1150 eggs in a nest. If a female has 5 nests, how many eggs does she lay?



**BONUS ▶** Sam types 5700 words in one hour. How many words can he type in 8 hours?