Multiply 3- and 4-Digits by 2-Digits

To multiply 3- and 4-digit numbers by 2-digit numbers using long multiplication.

1. Archie has been working through some calculations. Can you help him complete his calculations by placing the missing numbers inside the boxes?

a. 132 × 32 = ☐

			H	T	O
			1	3	2
		×		3	2
			2	6	4
	+	3	9	6	0
		☐	☐	☐	☐
				☐	☐

b. 243 × 21 = ☐

			H	T	O
			2	4	3
		×		2	1
			2	4	3
	+		☐	☐	6	0
		☐	☐	☐	☐
			☐	☐	

c. 2021 × 42 = ☐

	Th	H	T	O
	2	0	2	1
×			4	2
	4	0	4	2
+	☐	☐	☐	☐	☐
	☐	☐	☐	☐	☐

d. 2312 × 33 = ☐

	Th	H	T	O
	2	3	1	2
×			3	3
	☐	☐	☐	☐
+	6	9	3	6	0
	☐	☐	☐	☐	☐
	☐	☐		

2. Solve these calculations using the long multiplication method.

a. 443 × 21 =

			H	T	O
			4	4	3
		×		2	1
+					

b. 3021 × 32 =

		Th	H	T	O
		3	0	2	1
	×			3	2
+					

3. Use the long multiplication method to solve the word problem.

A rugby stadium can hold 3044 spectators. Each person buys a ticket for £22. How much money is made in total through ticket sales?

[   ] × [   ] = £ [   ]

	Th	H	T	O
×				
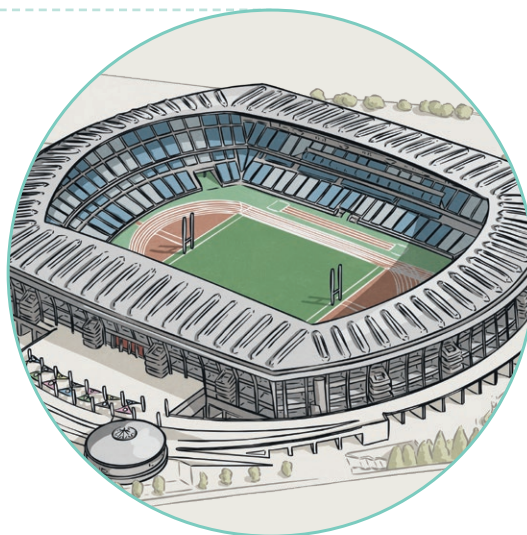
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Multiply 3- and 4-Digits by 2-Digits

To multiply 3- and 4-digit numbers by 2-digit numbers using long multiplication.

1. Solve these calculations using the long multiplication method.

a. 235 × 32 = ☐

		H	T	O
×				
+				

b. 343 × 53 = ☐

		H	T	O
×				
+				

c. 4027 × 64 = ☐

	Th	H	T	O
×				

d. 5382 × 75 = ☐

	Th	H	T	O
×				

2. Joe and Bethany have been working on the same calculation. They have both recorded a different answer.

Joe

			H	T	O
			4	3	2
	×			5	1
			4	3	2
	2	0 $_1$	5 $_1$	0	0
	2	0	9	3	2

Bethany

			H	T	O
			4	3	2
	×			5	1
			4	3	2
	2	1 $_1$	6 $_1$	0	0
	2	2	0	3	2
		$_1$			

Who is correct? Explain the error that one of the children has made.

3. Connie is filling a ball pit with balls. One bag of balls covers an area of 1000cm^2. The dimensions of the ball pit are 326cm × 73cm.
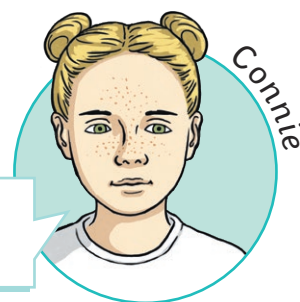
> I will need to buy 25 bags of balls!

Connie

		H	T	O
×				

Is Connie correct with her estimation? Explain your answer.

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Multiply 3- and 4-Digits by 2-Digits

To multiply 3- and 4-digit numbers by 2-digit numbers using long multiplication.

1. Solve these calculations using the long multiplication method.

a. 456 × 52 =

b. 578 × 63 =

c. 6036 × 74 =

d. 7198 × 86 =

2. Identify the missing digits in the calculations below. Some boxes may have two digits missing!

a.

			H	T	O
			☐	4	☐
×				3	6
	1	4	$_2$	☐	0
	7	$_1$	☐	5	0
		☐	8	☐	0
			$_1$		

b.

			H	T	O
			☐	2	7
×				4	☐
		1	☐	5	$_1$ 4
		5	$_1$ 0	$_2$ ☐	0
	2	☐	3	3	☐

3. A gardener is planting seeds to grow flowers to cover a path and a flower bed. Each packet of seeds covers 1000 cm². He has ordered 60 packets of flower seeds.

Has he ordered enough? Explain your answer.
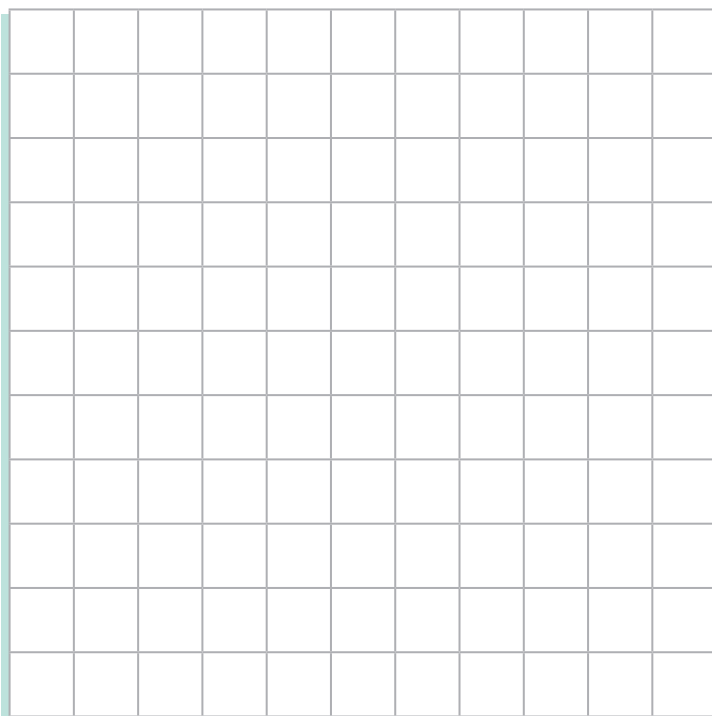
82cm ▭ 723cm

60cm ▫ 60cm

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Multiply 3- and 4-Digits by 2-Digits
Answers

1. a. 132 × 32 = **4224**

			H	T	O
			1	3	2
	×			3	2
			2	6	4
	+	3	9	6	0
		4	**2**	**2**	**4**
			1	1	

b. 243 × 21 = **5103**

			H	T	O
			2	4	3
	×			2	1
			2	4	3
	+	**4**	**8**	6	0
		5	**1**	**0**	**3**
			1	1	

c. 2021 × 42 = **84 882**

		Th	H	T	O
		2	0	2	1
	×			4	2
		4	0	4	2
+	**8**	**0**	**8**	**4**	**0**
	8	**4**	**8**	**8**	**2**

d. 2312 × 33 = **76 296**

		Th	H	T	O
		2	3	1	2
	×			3	3
		6	**9**	**3**	**6**
+	6	9	3	6	0
	7	**6**	**2**	**9**	**6**
		1	1		

2. a. 443 × 21 = **9303**

			H	T	O
			4	4	3
		×		2	1
			4	**4**	**3**
+		**8**	**8**	**6**	**0**
		9	**3**	**0**	**3**
			1	1	

b. 3021 × 32 = **96 672**

			H	T	O
		3	0	2	1
	×			3	2
		6	**0**	**4**	**2**
+	**9**	**0**	**6**	**3**	**0**
	9	**6**	**6**	**7**	**2**

3. **3044 × 22** = **£66 968**

	Th	H	T	O
	3	**0**	**4**	**4**
×			**2**	**2**
	6	**0**	**8**	**8**
6	**0**	**8**	**8**	**0**
6	**6**	**9**	**6**	**8**
			1	

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Multiply 3- and 4-Digits by 2-Digits
Answers

1. a. 235 × 32 = **7520**

			H	T	O
			2	3	5
	×			3	2
			4	7₁	0
+		7₁	0₁	5	0
			7	5	2	0
			1		

b. 343 × 53 = **18 179**

			H	T	O
			3	4	3
	×			5	3
		1	0₁	2	9
+	1	7₂	1₁	5	0
	1	8	1	7	9

c. 4027 × 64 = **257 728**

		Th	H	T	O
		4	0	2	7
	×			6	4
	1	6	1₁	0₂	8
2	4	1₁	6₄	2	0
2	5	7	7	2	8

d. 5382 × 75 = **403 650**

		Th	H	T	O
		5	3	8	2
	×			7	5
	2	6₁	9₄	1₁	0
3	7₂	6₅	7₁	4	0
4	0	3	6	5	0
1	1	1			

2. **Bethany is correct. Joe is incorrect because there are two instances where he forgot to add the regrouped digits.**

3. **Connie is incorrect. 326 × 73 = 23 798, so she will only need 24 bags to cover the total area.**

Multiply 3- and 4-Digits by 2-Digits
Answers

1. a. 456 × 52 = **23 712**

			4	5	6
	×			5	2
			9₁	1₁	2
	2	2₂	8₃	0	0
	2	3	7	1	2
		1			

b. 5382 × 75 = **36 414**

			5	7	8
	×			6	3
		1	7₂	3₂	4
	3	4₄	6₄	8	0
	3	6	4	1	4
		1		1	

a. 6036 × 74 = **446 664**

	6	0	3	6
	×		7	4
	2	4	1₁	4₂	4
4	2	2₂	5₄	2	0
4	4	6	6	6	4

b. 7198 × 86 = **619 028**

	7	1	9	8
	×		8	6
	4	3₁	1₅	8₄	8
5	7₁	5₇	8₆	4	0
6	1	9	0	2	8
1		1	1		

2. a.

			H	T	O
			2	4	**5**
×				3	6
	1	4 ₂	**7** ₃	0	
	7 ₁	**3** ₁	5	0	
	8	8	**2**	0	
			1		

b.

			H	T	O
			6	2	7
×				4	**2**
	1	**2**	5 ₁	**4**	
2	5 ₁	0 ₂	**8**	0	
2	**6**	3	3	**4**	

3. **The gardener has not ordered enough packets of seeds. He will need to order 63 packets to cover both of the flower beds.**

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

60 × 60 = 3600

1)

a)

		H	T	O
		2	3	8
	×		4	3
		7_1	1_2	4
	9_1	5_3	2	0
1	0	2	3	4

1

b)

		H	T	O
		3	4	1
	×		5	2
		6	8	2
1	7_2	0	5	0
1	7	7	3	2

1

c)

		H	T	O
		4	0	6
	×		6	7
	2	8	4_4	2
2	4	3_3	6	0
2	7	2	0	2

1   1

d)

		H	T	O
		5	2	7
	×		7	8
	4	2_2	1_5	6
3	6_1	8_4	9	0
4	1	1	0	6

1   1   1

2)

Product less than 115 000	Product greater than 115 000
a	b
d	c

3)

5267 × 43	→	226 000 + 481
4999 × 39	→	190 000 + 4961
6004 × 56	→	300 000 + 36 224

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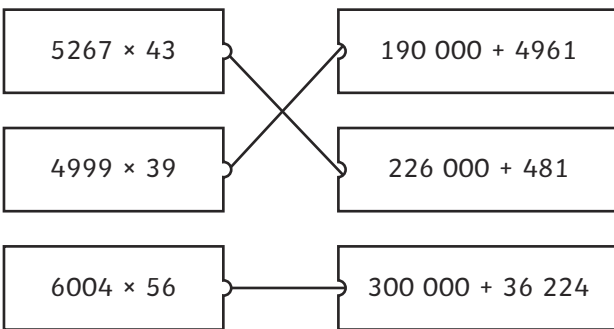
1) a) Laila has not used zero as a placeholder when multiplying 2 × 40. She has recorded the answer as 8 rather than 80.

   b) Laila has not added on regrouped digits before recording her answers.

2) a) 20 536

   b) 20 328

   c) 208

1) a) **Some possible calculations could include:**
   1234 × 56 = 69 104
   4321 × 56 = 241 976
   2345 × 16 = 37 520
   5432 × 16 = 86 912
   3456 × 12 = 41 472
   6543 × 12 = 78 516
   3156 × 24 = 75 744
   6513 × 24 = 156 312

   b) **1435 × 26 = 37 310**

2)

		7	7	5
×			3	3
	2	3 ₂	2 ₁	5
2	3 ₂	2 ₁	5	0
2	5	5	7	5

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1) Complete the calculations using the long multiplication method.

a)

		H	T	O
		2	3	8
	×		4	3

b)

		H	T	O
		3	4	1
	×		5	2

c)

		H	T	O
		4	0	6
	×		6	7

d)

		H	T	O
		5	2	7
	×		7	8

2) Sort the calculations into the table below. Write a,b,c and d in the correct sections.

a) 2365 × 45

b) 4190 × 28

c) 3672 × 32

d) 3105 × 36

Product **less than** 115 000	Product **greater than** 115 000

3) Match the multiplication calculation to the addition calculation that gives the same answer.

5267 × 43   190 000 + 4961

4999 × 39   226 000 + 481

6004 × 56   300 000 + 36 224

1) Laila has been practising long multiplication. For each question, spot the mistake she has made and explain where she has gone wrong. Then, complete the calculation and work out the correct answer.

a)

		H	T	O
		5	2	2
×			4	4
	2	0	8	8
	2	0	8	8
4	1	7	6	
		1		

The mistake that Laila made is

_____

_____

_____

_____

		H	T	O
×				

b)

		H	T	O
		6	5	3
×			2	3
	1	8₁	5	9
1	2₁	0	6	0
1	3	9	1	9

The mistake that Laila made is

_____

_____

_____

_____

		H	T	O
×				

2) A garden centre is ordering bulbs and packets of seeds for spring. They order 604 boxes of bulbs and 726 packets of seeds. There are 34 bulbs in a box and 28 packets of seeds in a bag.

Show your working for every question.

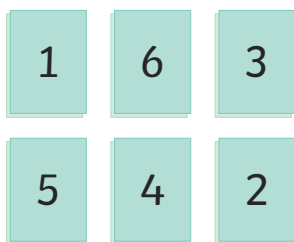**a)** How many bulbs will arrive in total?

		H	T	O
×				

b) How many packets of seeds will arrive in total?

		H	T	O
×				

c) How many more bulbs will they have than packets of seeds?

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1) a) Using all the digit cards, create four long multiplication calculations that give an even product.

	×		=	
	×		=	
	×		=	
	×		=	

Digit cards: 1 6 3 5 4 2

b) Create a 4-digit multiplied by 2-digit calculation that gives the product shown below.
You must only use each digit once!

$$\boxed{} \times \boxed{} = \boxed{37\ 310}$$

2) Each fruit matches a number - either **2**, **3**, **5** or **7**.
Can you work out which fruit corresponds to which number to solve the calculation correctly?

The zero placeholder has been put into the calculation for you.

		apple	apple	cherry
×			orange	orange
	lemon	orange	lemon	cherry
lemon	orange	lemon	cherry	0
lemon	cherry	cherry	apple	cherry

apple = ☐
orange = ☐
lemon = ☐
cherry = ☐

Record your findings and carry out the calculation using the numbers you have found to see if you are correct.

×			

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1) Complete the calculations using the long multiplication method.

a)

		H	T	O
		2	3	8
	×		4	3

b)

		H	T	O
		3	4	1
	×		5	2

c)

		H	T	O
		4	0	6
	×		6	7

d)

		H	T	O
		5	2	7
	×		7	8

2) Sort the calculations into the table below. Write a,b,c and d in the correct sections.

a) 2365 × 45 **b)** 4190 × 28

c) 3672 × 32 **d)** 3105 × 36

Product **less than** 115 000	Product **greater than** 115 000

3) Match the multiplication calculation to the addition calculation that gives the same answer.

5267 × 43	190 000 + 4961
4999 × 39	226 000 + 481
6004 × 56	300 000 + 36 224

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1) Laila has been practising long multiplication. For each question, spot the mistake she has made and explain where she has gone wrong. Then, complete the calculation and work out the correct answer.

a)

		H	T	O
		5	2	2
×			4	4
	2	0	8	8
	2	0	8	8
	4	1	7	6
		1		

b)

		H	T	O
		6	5	3
×			2	3
	1	8 ₁	5	9
1	2 ₁	0	6	0
1	3	9	1	9

2) A garden centre is ordering bulbs and packets of seeds for spring. They order 604 boxes of bulbs and 726 packets of seeds. There are 34 bulbs in a box and 28 packets of seeds in a bag.

Show your working for every question.

a) How many bulbs will arrive in total?

b) How many packets of seeds will arrive in total?

c) How many more bulbs will they have than packets of seeds?

1) a) Using all the digit cards, create four long multiplication calculations that give an even product.

| 1 | 6 | 3 | 5 | 4 | 2 |

	×		=	
	×		=	
	×		=	
	×		=	

b) Create a 4-digit multiplied by 2-digit calculation that gives the product shown below. You must only use each digit once!

| | × | | = | 37 310 |

2) Each fruit matches a number - either **2**,**3**,**5** or **7**. Can you work out which fruit corresponds to which number to solve the calculation correctly?

The zero placeholder has been put into the calculation for you.

🍎 =

🍊 =

🍋 =

🍒 =

Record your findings and carry out the calculation using the numbers you have found to see if you are correct.

---

1) a) Using all the digit cards, create four long multiplication calculations that give an even product.

| 1 | 6 | 3 | 5 | 4 | 2 |

	×		=	
	×		=	
	×		=	
	×		=	

b) Create a 4-digit multiplied by 2-digit calculation that gives the product shown below. You must only use each digit once!

| | × | | = | 37 310 |

2) Each fruit matches a number - either **2**,**3**,**5** or **7**. Can you work out which fruit corresponds to which number to solve the calculation correctly?

The zero placeholder has been put into the calculation for you.

🍎 =

🍊 =

🍋 =

🍒 =

Record your findings and carry out the calculation using the numbers you have found to see if you are correct.

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