

# Formal methods: multiply integers

1 a) Complete all three methods of working out  $293 \times 7$

Method 1

x	200	90	3	
7	1,400	630	21	
				1400 630 21 + <u>2051</u>

Method 2

		2	9	3	
	x			7	
		<u>2051</u>			
		6	2		

Method 3

		2	9	3	
		2	9	3	
		2	9	3	
		2	9	3	
		2	9	3	
		2	9	3	
		2	9	3	
	+	2	9	3	
		<u>2051</u>			
		6	2		

b) Which method do you prefer? Explain why.

Various answers.

c) Which method is not appropriate for  $85 \times 27$ ?

Method 3

2 Use a formal method to work out the multiplications.

a)  $24 \times 3 =$  72

c)  $157 \text{ kg} \times 8 =$  1,256 kg

b)  $217 \times 5 =$  1,085

d)  $\text{£}1,175 \times 6 =$  £7,050

3 Mo uses counters to work out  $32 \times 14$

x	10	10	10	1	1
10	100	100	100	10	10
1	10	10	10	1	1
1	10	10	10	1	1
1	10	10	10	1	1
1	10	10	10	1	1

Complete the calculation.

$32 \times 14 =$  448

4 a) Find and circle the mistake in this calculation.

x	300	20	6
40	1,200	800	240
7	2,100	140	42

$1,200 + 2,100 + 800 + 140 + 240 + 42 = 4,522$

b) Work out  $326 \times 47$

15,322

5 Complete the methods for these multiplications.

a)  $48 \times 32 =$  1,536

x	40	8
30	1,200	240
2	80	16

b)  $137 \times 26 =$  3,562

x	100	30	7
20	2,000	600	140
6	600	180	42

6 Use column multiplication to work out these calculations.

a)  $42 \times 53 =$  2,226

			4	2	
	x		5	3	
			<hr/>		
			1	2	6
+	2	1	0	0	
	<hr/>				
	2	2	2	6	

c)  $209 \times 72 =$  15,048


b)  $431 \times 26 =$  11,206

		4	3	1	
	x		2	6	
		<hr/>			
		2	5	8	6
		8	6	2	0
	<hr/>				
	1	1	2	0	6
		,	,		

d)  $293 \times 46 =$  13,478


e)  $815 \times 14 =$  11,410


f)  $687 \times 263 =$  180,681


7 a) Use place value to explain the mistake in the calculation.

		7	1	8	
	x		2	4	
		<hr/>			
	2	8	3	7	2
	1	4	1	3	6
	<hr/>				
	4	3	0	8	
	1	1			

718 x 20 = 14,360 not 1,436

b) What would you do differently?