Written methods – extended multiplication

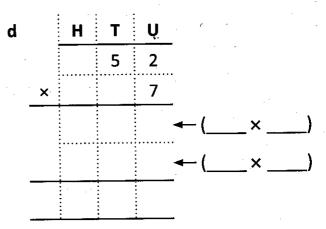|	H	T	U	
		3	4	
×			3	
		1	2	← (3 × 4)
		9	0	← (3 × 30)
	1	0	2	

In extended multiplication, we multiply the units and tens separately, then add the answers together.

1 Practise these problems:

a

	H	T	U	
		2	3	
×			4	
				← (4 × 3)
				← (4 × 20)

b

	H	T	U	
		3	6	
×			5	
				← (5 × 6)
				← (5 × 30)

c

	H	T	U	
		7	4	
×			6	
				← (___ × ___)
				← (___ × ___)

d

	H	T	U	
		5	2	
×			7	
				← (___ × ___)
				← (___ × ___)

2 Use extended multiplication to solve this word problem:

In a pet store, there are 7 tanks of tropical fish with 14 fish per tank.
How many fish are there altogether?

	H	T	U	
×				
				← (___ × ___)
				← (___ × ___)

Written methods – extended multiplication

	H	T	U	
	2	3	4	
×			3	
		1	2	← (3 × 4)
		9	0	← (3 × 30)
	6	0	0	← (3 × 200)
	7	0	2	

Extended multiplication is another way of solving problems. In extended multiplication we multiply the units, tens and hundreds separately then add the answers together.
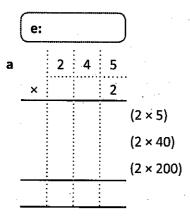
1 Use a calculator to help you work out the values you could expect when multiplying the following. Tick the columns:

> 2 × 2 would give me a unit only. But 8 × 6 would give me tens and units. I'll tick both columns.

		T TH	TH	H	T	U
a	a unit by a unit → 9 × 7					
b	a ten by a unit → 43 × 5					
c	a hundred by a unit → 126 × 7					
d	a ten by a ten → 13 × 72					
e	a ten by a hundred → 55 × 120					

2 Complete using extended multiplication. Estimate first:

a e:

	2	4	5
×			2

(2 × 5)
(2 × 40)
(2 × 200)

b e:

	4	5	2
×			7

(7 × 2)
(7 × 50)
(7 × 400)

c e:

	3	2	7
×			8

(8 × 7)
(8 × 20)
(8 × 300)

d e:

	2	7	9
×			2

(2 × _____)
(2 × _____)
(2 × _____)

e e:

	4	1	2
×			9

(9 × _____)
(9 × _____)
(9 × _____)

Multiplication and Division

Written methods – extended multiplication

3 Use extended multiplication to solve these problems:

a Jack and his 2 friends bought tickets to the World Cup. Each ticket costs $124. How much did they spend altogether?

e:

b Jack has a paper round and earns $7 per day. He works for 18 days and saves it all. Has he earned enough to pay for his World Cup ticket?

e:

c Yusuf's highest Level 1 Live Mathletics score is 112. Yep, he's fast. If he scores this 7 times in a row, how many correct answers has he achieved?

e:

d Kyra's class of 24 all had to stay in for 11 minutes of their recess. Something to do with too much talking. How many minutes is this in total?

e:

4 Once you have the hang of extended multiplication, you can apply it to larger numbers. Try these:

a
```
        2   4   5
  ×         3   2
  ─────────────────
                    (2 × 5)
                    (2 × 40)
                    (2 × 200)
                    (30 × 5)
                    (30 × 40)
                    (30 × 200)
  ─────────────────
  ─────────────────
```

b
```
        3   2   9
  ×         4   3
  ─────────────────
                    (3 × 9)
                    (3 × 20)
                    (3 × 300)
                    (40 × 9)
                    (40 × 20)
                    (40 × 300)
  ─────────────────
  ─────────────────
```

c
```
        2   3   8
  ×         5   2
  ─────────────────
                    (2 × 8)
                    (2 × 30)
                    (2 × 200)
                    (50 × 8)
                    (50 × 30)
                    (50 × 200)
  ─────────────────
  ─────────────────
```

Multiplication and Division