Written methods – contracted multiplication

	H	T	U
		$^{1}5$	4
×			3
	1	6	2

Start with the units. 4 × 3 = 12 units.

Rename this as 1 ten and 2 units. Put the 2 in the units column and regroup the 1 to the tens column.

3 × 5 plus the regrouped 1 is 16 tens.

Rename this as 1 hundred and 6 tens.

1 **Practise these problems:**

a

	H	T	U
		4	2
×			9

b

	H	T	U
		3	8
×			7

c

	H	T	U
		2	5
×			4

d

	H	T	U
		2	6
×			4

e

	H	T	U
		5	5
×			8

f

	H	T	U
		6	2
×			7

2 **Use contracted multiplication to solve these word problems:**

a On a farm, 6 lambs were born every day over 25 days. How many lambs were born in total?

	H	T	U
×			

b For my school fete day, I baked 9 trays of cupcakes. If there are 14 cupcakes on each tray, how many did I bake in total?

	H	T	U
×			

Written methods – contracted multiplication

	H	T	U
	$^{1}1$	$^{1}5$	6
×			3
	4	6	8

Contracted multiplication is one way to solve a multiplication problem.
First we use our mental strategies to estimate an easier problem:
3 × 150 = 450. The answer will be around 450.
We start with the units. 3 × 6 is 18 units. We rename this as 1 ten and 8 units.
We put 8 in the units column and carry the 1 to the tens column.
3 × 5 plus the carried 1 is 16 tens. We rename this as 1 hundred and 6 tens.
We put 6 in the tens column and carry the 1 to the hundreds column.
3 × 1 plus the carried 1 is 4 hundreds. We put 4 in the hundreds column.

1 **Solve these problems using contracted multiplication. Estimate first:**

a e: ____

	H	T	U
	3	2	7
×			3

b e: ____

	H	T	U
	2	4	7
×			4

c e: ____

	H	T	U
	1	5	4
×			5

d e: ____

	H	T	U
	3	1	5
×			3

e e: ____

	H	T	U
	2	8	6
×			2

f e: ____

	H	T	U
	1	9	4
×			5

2 **Solve these word problems. Show how you worked them out:**

a Dan's dad has resorted to bribery to counteract Dan's PlayStation addiction. For every evening, Dan spends away from the PlayStation, his dad pays him $3. So far, Dan has racked up an impressive 27 nights (though he looks like breaking any day now). How much money does this equate to?

b Dan's mum thinks she might get in on the action too and pays Dan $4 for every week that he puts his dishes in the dishwasher and his dirty clothes in the basket. Dan is less keen on this plan but does manage 33 weeks in 1 year. How much has he made out of this scheme?

Written methods – contracted multiplication

3 **Below are Jess and Harry's tests. Check them and give them a mark out of 5. If they made mistakes, give them some feedback as to where they went wrong.**

Jess

$$\begin{array}{r} {}^{1}{}^{1}3\ 8\ 7 \\ \times\qquad 2 \\ \hline 7\ 7\ 4 \end{array}$$

$$\begin{array}{r} 1\ 1\ 9 \\ \times\qquad 7 \\ \hline 7\ 7\ 3 \end{array}$$

$$\begin{array}{r} 2\ 0\ 3 \\ \times\qquad 3 \\ \hline 6\ 0\ 9 \end{array}$$

$$\begin{array}{r} 4\ {}^{1}3\ 6 \\ \times\qquad 3 \\ \hline 1\ 2\ 0\ 8 \end{array}$$

$$\begin{array}{r} 4\ 0\ 1 \\ \times\qquad 7 \\ \hline 2\ 8\ 0\ 7 \end{array}$$

Harry

$$\begin{array}{r} {}^{1}3\ {}^{1}8\ 7 \\ \times\qquad 2 \\ \hline 7\ 7\ 4 \end{array}$$

$$\begin{array}{r} {}^{1}1\ {}^{6}1\ 9 \\ \times\qquad 7 \\ \hline 8\ 3\ 3 \end{array}$$

$$\begin{array}{r} 2\ 0\ 3 \\ \times\qquad 3 \\ \hline 6\ 9 \end{array}$$

$$\begin{array}{r} {}^{1}4\ {}^{1}3\ 6 \\ \times\qquad 3 \\ \hline 1\ 3\ 0\ 8 \end{array}$$

$$\begin{array}{r} 4\ 0\ 1 \\ \times\qquad 7 \\ \hline 2\ 8\ 7 \end{array}$$