1) a)

			H	T	O	
			2	3	3	
	×				3	
			6	9	9	

b)

			H	T	O	
			1	2	4	
	×				4	
			4	9	6	
				1		

c)

			H	T	O	
			2	5	7	
	×				2	
			5	1	4	
			1	1		

d)

			H	T	O	
			3	2	5	
	×				5	
		1	6	2	5	
			1	1	2	

2)

			H	T	O	
			3	6	8	
	×				8	
		2	9	4	4	
			2	5	6	

Hundreds	Tens	Ones
100 100 100	10 10 10 / 10 10 10	1 1 1 / 1 1 1 / 1 1
100 100 100	10 10 10 / 10 10 10	1 1 1 / 1 1 1 / 1 1
100 100 100	10 10 10 / 10 10 10	1 1 1 / 1 1 1 / 1 1
100 100 100	10 10 10 / 10 10 10	1 1 1 / 1 1 1 / 1 1
100 100 100	10 10 10 / 10 10 10	1 1 1 / 1 1 1 / 1 1
100 100 100	10 10 10 / 10 10 10	1 1 1 / 1 1 1 / 1 1
100 100 100	10 10 10 / 10 10 10	1 1 1 / 1 1 1 / 1 1
100 100 100	10 10 10 / 10 10 10	1 1 1 / 1 1 1 / 1 1

3) **a)** 458 × 6 = **2748**

			H	T	O
			4	5	8
	×				6
		2	7	4	8
			2	3	4

b) 981 × 3 = **2943**

			H	T	O
			9	8	1
	×				3
		2	9	4	3
			2	2	

c) 808 × 2 = **1616**

			H	T	O
			8	0	8
	×				2
		1	6	1	6
			1		1

d) 670 × 5 = **3350**

			H	T	O
			6	7	0
	×				5
		3	3	5	0
			3	3	

1) False. The largest 3-digit by 1-digit multiplication calculation is 999 × 9. This calculation would require 3 lots of regrouping: the 80 ones regrouped into 8 tens, the 80 tens regrouped into 8 hundreds and the 80 hundreds regrouped into 8 thousands. It is impossible for regrouping to occur 4 times when multiplying a 3-digit number by a 1-digit number. You would need to be multiplying a 4-digit number by a 1-digit number for regrouping to happen 4 times.

			H	T	O
			9	9	9
	×				9
		8	9	9	1
			8	8	8

2)

a)

		2	7	6
	×			9
	2	4	8	4
		2	6	5

b)

		6	2	1
	×			4
	2	4	8	4
			2	

c)

		4	1	4
	×			6
	2	4	8	4
		2		2

d)

		3	4	2
	×			7
	2	3	9	4
		2	2	1

D is the odd one out because it is the only calculation with the answer 2394. The rest of the calculations all have an answer of 2484.

3) 453 × 9 = **4077**

499 × 8 = **3992**

851 × 6 = **5106**

851 × 6 is the closest to 5000 because it is only 106 more than 5000. 3992 is 1008 less than 5000 and 4077 is 923 less than 5000.

1) There are only two possible calculations. Although 2 is a factor of 2608, 2 would need to be multiplied by a 4-digit number to give 2608.

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

			H	T	O
			3	2	6
	×				8
		2	6	0	8
			2	2	4

2)

Child		Clue	Calculation
Moirag		The answer to my calculation is an even number.	C
Polly		The answer to my calculation is greater than 5000.	B
Rocky		The sum of the digits for the answer to my calculation is 16.	D
Olga		My calculation required no regrouping.	A
Taj		The answer to my calculation has a place holder.	E

A

			2	1	3
	×				3
		6	3	9	

B

			9	8	9
	×				7
		6	9	2	3
		6	6	6	

C

			5	9	4
	×				8
		4	7	5	2
		4	7	3	

D

			9	3	8
	×				8
		7	5	0	4
		7	3	6	

E

			3	7	5
	×				6
		2	2	5	0
		2	4	3	