THE GRID METHOD FOR LONG DIVISION

LONG DIVISION IS OFTEN CONSIDERED ONE OF THE MOST CHALLENGING TOPICS TO TEACH. LUCKILY, ARE STRATEGIES THAT WE CAN TEACH TO MAKE MULTI-DIGIT DIVISION EASIER TO UNDERSTAND AN PERFORM.

THE GRID METHOD IS ONE OF THESE STRATEGIES.

THIS METHOD FOLLOWS THE SAME STEPS AS TRADITIONAL LONG DIVISION, BUT USES A DIFFERENT M OF OGANISATION. THIS MAKES TRADITONAL LONG DIVISION EASIER FOR STUDENTS.

BASIC STEPS FOR THIS METHOD:

STEP 1. THE GRID MUST HAVE 2 ROWS AND AS MANY COLUMNS AS YOUR DIVIDEND HAS DIGITS.

STEP 2. PLACE YOUR DIVIDEND IN THE BOX AND YOUR DIVISOR ON THE OUTSIDE OF THE GRID.

LET'S SEE SOME EXAMPLES:

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EXAMPLE: 423 ÷3.

STEP1. FIRST WE DRAW GRID, WHICH DEPENDS ON NO. OF DIGITS IN OUR DIVIDEND. FOR OUR EXAMPLE, OUR GRID WILL HAVE 3 COLUMNS. WE WRITE THE DIGITS FROM 423 INSIDE THE GRID, AND OUR DIVISOR, 3 ON THE LEFT SIDE (OUTSIDE THE GRID).

3	4	2	3

STEP 2. NOW ASK YOURSELF, “HOW MANY TIMES CAN 3 GO INTO 4?” THE ANSWER IS 1, SO WE WRITE A 1 ON TOP OF THE GRID. WE NOW MULTIPLY 1X3 =3, AND TAKE THAT 3 AWAY FROM 4. THIS LEAVES US WITH 1 AS REMAINDER.

	1		
3	4	2	3
	- 3		
	1		

STEP 3. NOW WE CARRY THAT 1 OVER TO THE TENS PLACE (BEFORE THE NEXT NO.) OF THE NEXT SECTION OF THE GRID. THIS GIVES US A 12 IN THE NEXT SECTION OF THE GRID.
NOW ASK YOURSELF, “HOW MANY TIMES CAN 3 GO INTO 12?” THE ANSWER IS 4, SO WE WRITE 4 ON TOP OF THE GRID. WE NOW MULTIPLY 3 X 4 =12, AND TAKE THAT 12 AWAY FROM 12. THIS LEAVES US WITH 0 AS REMAINDER.

	1	4	
3	4	12	03
	- 3	-12	
	1	0	

STEP 4. . NOW WE CARRY THAT 0 OVER TO THE TENS PLACE (BEFORE THE NEXT NO.) OF THE NEXT SECTION OF THE GRID. THIS DOESN’T AFFECT THAT NUMBER, SO WE STILL HAVE 3 IN THE NEXT SECTION OF THE GRID.
NOW ASK YOURSELF, “HOW MANY TIMES CAN 3 GO INTO 3?” THE ANSWER IS 1, SO WE WRITE 1 ON TOP OF THE GRID. WE NOW MULTIPLY 3 X 1 =3, AND TAKE THAT 3 AWAY FROM 3. THIS LEAVES US WITH 0 AS REMAINDER.

	1	4	1
3	4	12	03
	- 3	-12	-3
	1	0	0

TO FIND THE FINAL QUOTIENT, WE SIMPLY LIST THE DIGITS FROM THE TOP OF THE GRID : 1,4,1.

SO 423 ÷3 = 141.

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THIS TIME WE WILL TRY AN EXAMPLE THAT HAS A REMAINDER AND ALSO MORE DIGITS. WHEN WE HAVE MORE DIGITS IN OUR DIVIDEND WE SIMPLY EXTEND OUR GRID.

EXAMPLE 2: 6542 ÷ 5.

	1	3	0	8
5	6	15	04	42
	-5	-15	-0	-40
	1	0	4	2

STEP 1. FIRST WE KNOW THAT 5 GOES INTO 6, ONE TIME, SO WE WRITE A 1 ON TOP AND MULTIPLIED 5X1 =5, AND TOOK THAT 5 FROM 6, LEAVING US WITH 1 AS REMAINDER. WE CARRY THAT 1 OVER TO THE TENS PLACE OF THE NEXT SECTION OF GRID. WE HAVE 15 IN THAT SECTION.

STEP 2. WE KNOW THAT 5 GOES INTO 15, THREE TIMES, SO WE WRITE A 3 ON TOP AND MULTIPLIED 5X3 =15, AND TOOK THAT 15 FROM 15, LEAVING US WITH 0 AS REMAINDER. WE CARRY THAT 0 OVER TO THE TENS PLACE OF THE NEXT SECTION OF GRID. WE HAVE 04 (OR 4) IN THAT SECTION.

STEP 3. NOW, 5 DOES NOT GO INTO 4, SO WE WRITE 0 ON TOP AND MULTIPLIED 5X0 =0, AND TOOK THAT 0 FROM 4, LEAVING US WITH 4 AS REMAINDER. WE CARRY THAT 4 OVER TO THE TENS PLACE OF THE NEXT SECTION OF GRID. WE HAVE 42 IN THAT SECTION.

STEP 4. FINALLY, 5 GOES INTO 42, EIGHT TIMES, SO WE WRITE A 8 ON TOP AND MULTIPLIED 5X8 =40, AND TOOK THAT 40 FROM 42, LEAVING US WITH 2 AS REMAINDER. THIS MEANS THAT OUR REMAINDER IS 2.

TO FIND THE FINAL QUOTIENT, WE SIMPLY LIST THE DIGITS FROM THE TOP OF THE GRID: 1,3,0,8 AND THEN ADD OUR REMAINDER 2.

SO, *6542 ÷ 5 = 1308 R2.*

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