

Division to 13 Quotient Digits: Teacher's Guide

1. About the drill

A division drill using a "dividend" and a "divisor" that the teacher reads out. Any number of students can take part at the same time. Each correct answer moves a student up one stage, in this order: 4th, 7th, 10th and 13th quotient digit.

2. What you need

- Teacher: the Division to 13 Quotient Digits sheet (answer chart)
- Students: an abacus, paper for writing down the divisor, and a pencil or pen

3. Reading out the dividend and divisor

- The teacher reads out the dividend one digit at a time, and the students set it on the abacus. Example: the dividend 142884 is read "1, 4, 2, 8, 8, 4".
- Next, the teacher says "divisor" and then reads out the divisor, and the students write it down on paper. Example: the divisor 965742 is read "divisor, 965,742".
- When the teacher finishes reading, everyone starts calculating at the same time.

4. How to answer (everyone starts at the 4th digit)

Divide the dividend by the divisor and find 4 quotient digits. Each student answers in 2 steps as soon as they finish calculating.

Example: for the divisor 962514 at the 4th digit, the remainder is 469224 and the digit (the last quotient digit found) is 4.

- Step 1: The student says the last 2 digits of the remainder ("2, 4"). If they are right, the teacher repeats the same digits ("2, 4"). If they are wrong, the teacher says nothing, and the student calculates again from the start.
- Step 2: The student whose digits were repeated says the rest of the remainder and then the digit ("4, 6, 9, 2, digit 4"). If the answer is right, the teacher says "Correct".
- Zeros at the end of the remainder are not said, and they are not printed on the sheet. Example: if the remainder is 095130, the sheet shows "09513" and the last 2 digits are "1, 3".
- The first student to answer correctly wins. Both accuracy and speed matter.

5. Starting the next problem

- After each problem, the teacher reads out the same dividend again and then a new divisor. The students clear the abacus, set the dividend again, and calculate.
- A student who got the previous problem right moves up one stage (after a correct answer at the 4th digit, the student works at the 7th digit from the next problem). A student who did not get it right stays at the same stage.
- On the same problem, different students may be working to different quotient digits.

6. After reaching the 13th digit

A student who answers correctly at the 13th digit either continues at the 13th digit or switches to mental calculation and starts again from the 4th digit.

7. When students are used to it

You can change the difficulty by adding rules about how students remember the divisor. As well as calculation skill, this trains concentration and memory.

- Remember the last 1 or 2 digits of the divisor without writing them down
- Write nothing down: remember the whole divisor and calculate

Dividend	/ 42884
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6-digit divisor

(4th, 7th, 10th and 13th quotient digits)

	Divisor	4th digit		7th digit		10th digit		13th digit	
		Digit	Remainder	Digit	Remainder	Digit	Remainder	Digit	Remainder
A	927,276	0	83496	0	4116	3	816732	0	72912
	852,451	6	132124	4	846546	3	062157	2	780528
	705,302	5	60345	5	41679	0	66182	8	246724
	661,196	0	65664	3	072372	9	301636	6	130624
	570,029	6	347326	9	178339	2	489952	9	297089
	495,484	3	359628	5	4021	1	262476	9	364964
	309,013	3	272901	3	042521	7	186219	2	193174
	212,568	1	170472	1	205032	4	116448	7	173304
	173,791	1	104189	9	088191	7	078963	4	061886
B	914,541	2	326958	7	466863	0	44709	8	793992
	851,013	8	840186	7	236169	7	438399	5	127305
	789,362	0	09478	0	05656	1	515298	2	633976
	605,293	0	34852	5	476525	7	159409	3	216941
	584,395	4	57862	0	06895	7	575785	5	155925
	458,302	7	312666	2	104036	7	001446	3	071094
	346,838	9	214278	7	278954	4	096248	7	173874
	281,489	6	001836	6	147066	2	128742	7	101527
	179,272	0	04216	5	03108	3	065944	7	151176
C	914,782	1	865298	5	82901	6	217508	7	704666
	893,287	9	474087	0	64489	1	830073	9	209377
	739,896	1	100824	6	198144	7	591768	9	591096
	688,939	3	669453	1	493231	5	639615	8	279608
	514,713	5	511425	3	314991	1	501357	4	026538
	409,686	7	264918	6	260844	6	283704	2	201288
	363,573	9	361683	4	291438	1	216027	4	064638
	295,109	1	217331	6	130776	3	042713	4	217304
	198,272	6	091968	3	168064	7	127616	3	127104
D	936,293	6	056882	0	70442	2	327664	9	897743
	842,357	6	202528	0	36232	0	10649	6	353018
	728,013	2	478494	7	189459	0	17562	1	168867
	616,137	9	018297	9	429027	6	195648	7	332571
	505,955	4	02308	5	312025	6	35672	5	021725
	492,411	1	355689	2	168258	1	345849	2	176478
	357,039	1	326961	5	270315	7	036477	2	059022
	231,824	3	108688	8	194368	8	099488	9	035504
	173,356	2	039848	9	149476	2	043128	8	135712
E	961,955	5	336825	0	14075	6	30457	6	59222
	882,507	9	061167	9	274017	0	43983	8	341514
	734,954	4	089424	1	494566	2	676912	1	019366
	653,209	7	271917	6	182056	8	463898	0	11961
	566,751	1	060729	7	086643	2	496848	6	374124
	423,165	6	23496	5	103425	4	17274	8	08868
	305,924	0	17492	1	237396	5	3049	6	199696
	221,749	3	111193	1	096751	6	068436	8	137308
	190,257	0	00993	2	036636	2	106656	0	11208
F	936,255	6	11487	2	64689	0	87405	3	524085
	825,542	0	65234	0	16182	6	013768	6	559328
	708,153	7	495399	9	400053	4	654708	4	374628
	647,806	5	42777	0	21804	6	377184	2	160908
	529,032	0	4536	7	219576	5	02772	2	210336
	447,923	9	413553	3	120071	8	027636	1	312697
	396,706	1	301694	0	19744	7	277118	8	217212
	249,817	9	136577	6	176918	8	047564	0	09877
	193,693	6	160432	8	054196	9	155653	3	117521