

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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5-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	93,928	/	19512	7	68904	3	54776	3	15976
	81,411	5	07695	4	42366	0	3228	6	41244
	72,834	/	56526	6	06816	3	42438	2	48612
	68,024	0	336	3	64168	3	21368	4	08464
	56,586	5	0435	6	49464	4	07836	8	27132
	48,771	9	33741	/	40239	5	02925	9	47511
	33,288	2	11904	7	20184	6	11472	4	20928
	29,516	0	2656	9	25116	0	274	8	09152
	16,848	0	1296	9	03888	0	1296	9	03888
B	94,526	/	55214	4	10816	4	40036	3	51502
	80,207	/	35333	0	4192	2	51946	7	52071
	74,112	7	70176	6	66048	/	14208	/	52608
	68,693	0	0256	7	18359	7	17969	/	40127
	51,706	3	20322	3	01542	9	42526	2	23668
	48,267	0	1368	3	20439	3	22059	7	00981
	37,918	8	08976	6	27352	/	13122	6	02372
	28,286	/	11414	3	14742	/	04994	6	15664
	17,951	9	11991	7	17683	5	01265	0	0843
C	95,016	3	74952	8	79392	5	5364	4	50976
	81,338	6	54472	9	56878	9	22738	9	44698
	72,014	4	08224	4	14404	0	012	6	47776
	63,087	4	55032	2	20136	9	11247	8	17514
	56,502	8	46944	0	4734	7	47826	6	25308
	47,853	5	42795	4	14418	/	14247	7	34659
	31,224	6	02976	5	0972	/	09336	9	00024
	26,478	6	08712	9	00738	7	23094	2	05184
	14,587	5	04335	7	02661	2	06166	2	10286
D	94,648	9	60168	5	6652	2	77104	4	60528
	83,486	/	39454	2	48608	2	19148	9	29706
	75,152	/	20048	6	57568	6	01568	0	6496
	69,691	0	1745	0	2725	/	00819	/	52399
	56,932	9	41612	0	5164	7	02676	7	00196
	42,784	9	28224	9	29344	5	3696	3	37408
	30,006	/	25434	7	18918	0	1422	3	27162
	28,123	0	1916	/	08237	2	25084	/	26407
	17,078	6	09452	3	07866	0	1012	2	09824
E	96,756	6	72144	5	6078	8	17232	8	09432
	80,588	3	01476	8	25416	5	3078	/	75972
	78,346	3	59242	6	12424	8	45332	8	48012
	64,505	5	05425	4	0658	2	0049	7	38465
	53,916	0	066	2	22248	2	34608	/	47844
	45,464	2	36112	4	13584	8	35728	5	3876
	34,246	2	09688	2	30628	4	12076	2	21408
	26,053	4	09348	8	21026	7	01229	7	04509
	18,617	4	17142	0	1436	/	06293	8	00454
F	92,696	/	39464	5	682	5	6844	8	30352
	84,357	3	67599	/	29043	4	24192	6	65898
	76,582	5	5857	4	61352	/	09818	8	15504
	65,343	6	44202	6	30132	/	08877	5	55695
	58,019	2	41222	0	2851	/	22671	0	4359
	48,424	0	332	5	2956	0	2136	/	05016
	36,008	8	04256	8	07056	5	3444	6	16352
	27,627	/	24783	7	01581	7	06261	6	17298
	19,893	2	12474	7	01089	4	14778	2	17394