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Divisibility Tables - Guided Lesson Explanation

Before solving the divisibility table, we need to know the divisibility rules.

Divisibility Rules

Divisor	Divisibility Condition	Example
2	The last digit is even (0, 2, 4, 6, or 8).	38 : 8 is even which is divisible by 2.
3	The sum of the digits is divisible by 3.For large numbers, digits may be summed iteratively.	4,053 => 4+0+5+3=12 and 1+2=3. which is clearly divisible by 3.
4	Add the ones digit to twice the tens digit.(All digits to the left of the tens digit can be ignored.)	7,372 : 2 + (2 x 7) = 16 which is clearly divisible by 4.
	The last two digits divisible by 4.	20,516 : 16 is divisible by 4.
	If the tens digit is even, and the ones digit is 0, 4, or 8. If the tens digit is odd, and the ones digit is 2, or 6.	728 : 2 is even, & the last digit is 8. 356 : 3 is odd, & the last digit is 6.
6	If it is divisible by 2 and by 3. 2,562	2,562 : 2 + 5 + 6 + 2 = 15, which it is divisible by 3, and the last digit is even which is divisible by 2, so the number is divisible 6.
7	Form the alternating sum of blocks of three from right to left.	1,369,851: 851 − 369 + 1 = 483 = 7 × 69
	Subtract 2 times the last digit from the rest. (Works because 21 is divisible by 7.)	483: 48 − (3 × 2) = 42 = 7 × 6.
	Or, add 5 times the last digit to the rest. (Works because 49 is divisible by 7.)	483: 48 + (3 × 5) = 63 = 7 × 9.
	Or, add 3 times the first digit to the next. (This works because 10a + b − 7a = 3a + b − last number has the same remainder)	483: 4×3 + 8 = 20 remainder 6, 6×3 + 3 = 21.
	Multiply each digit (from right to left) by the digit in the corresponding position in this pattern (from left to right): 1, 3, 2, -1, -3, -2 (repeating for digits beyond the hundred-thousands place). Then sum the results.	483595: (4 × (-2)) + (8 × (-3)) + (3 × (-1)) + (5 × 2) + (9 × 3) + (5 × 1) = 7.
8	If the last three digits are divisible by 8, then the entire number is also divisible by 8.	1,024 : 024 is divisible by 8 so, 1,024 is also divisible by 8.

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Explanation#1

If the number to the left of each row is divisible by the number at top of each column, we will write YES or NO in each box.

	2	3	4	6	7	8
32	YES	NO	YES	NO	NO	YES
84	YES	YES	YES	YES	YES	NO
29	NO	NO	NO	NO	NO	NO
37	NO	NO	NO	NO	NO	NO
18	YES	YES	NO	YES	NO	NO
76	YES	NO	YES	NO	NO	NO
34	YES	NO	NO	NO	NO	NO
16	YES	NO	YES	NO	NO	YES
48	YES	YES	YES	YES	NO	YES

Explanation#2

If the number to the left of each row is divisible by the number at top of each column, we will write YES or NO in each box.

	2	3	4	5	6	7
65	NO	NO	NO	YES	NO	NO
72	YES	YES	YES	NO	YES	NO
77	NO	NO	NO	NO	NO	YES
91	NO	NO	NO	NO	NO	YES
19	NO	NO	NO	NO	NO	NO
30	YES	YES	NO	YES	YES	NO
69	NO	YES	NO	NO	NO	NO
11	NO	NO	NO	NO	NO	NO
34	YES	NO	NO	NO	NO	NO

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Explanation # 3

If the number to the left of each row is divisible by the number at top of each column, we will write YES or NO in each box.

	2	3	4	7	8	9
64	YES	NO	YES	NO	YES	NO
73	NO	NO	NO	NO	NO	NO
17	NO	NO	NO	NO	NO	NO
36	YES	YES	YES	NO	NO	YES
14	YES	NO	NO	YES	NO	NO
74	YES	NO	NO	NO	NO	NO
48	YES	YES	YES	NO	YES	NO
86	YES	NO	NO	NO	NO	NO
96	YES	YES	YES	NO	YES	NO