

NAME _____

DATE _____

Divisibility Rules

It's easy to tell if a small number like 12 is divisible by another number. With bigger numbers, like 435, it can be harder to tell. You already know how to tell if a number is divisible by 2, 5, or 10. There are also rules that can help you tell if any number is divisible by 3, 6, or 9.

Rule	Example
A number is divisible by 3 if the sum of its digits is divisible by 3.	957 is divisible by 3 because $9 + 5 + 7 = 21$ and 21 is divisible by 3. ($21 \div 3 = 7$)
A number is divisible by 6 if it is divisible by 3 (see above) and it is divisible by 2 (has a 0, 2, 4, 6, or 8 in the ones place).	786 is divisible by 6 because $7 + 8 + 6 = 21$ and 21 is divisible by 3. ($21 \div 3 = 7$) 786 also ends in 6, which means it is even (divisible by 2).
A number is divisible by 9 if the sum of its digits is divisible by 9.	837 is divisible by 9 because $8 + 3 + 7 = 18$ and 18 is divisible by 9.

1 Use the chart below to help you figure out if the numbers are divisible by 3, 6, or 9. In the last column, you don't have to list all the factors of the number. Just list any other numbers you know for sure that the number is divisible by.

Number	Sum of the Digits	Divisible by 3?	Divisible by 6?	Divisible by 9?	It's also divisible by
ex 495	$4 + 9 + 5 = 18$	yes	no	yes	5
a 987					
b 540					
c 762					
d 747					
e 570					
f 645					
g 792					

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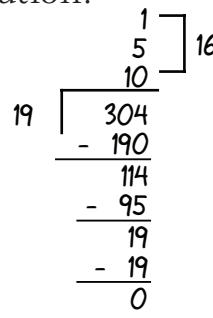
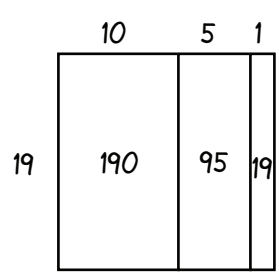
Division with Menus & Sketches

1 Fill in the multiplication menu.

a $1 \times 19 =$ _____ **b** $2 \times 19 =$ _____ **c** $10 \times 19 =$ _____

d $5 \times 19 =$ _____ **e** $20 \times 19 =$ _____ **f** $15 \times 19 =$ _____

2 Solve the two division problems using the menu above and sketches to help. You can add to the menu if you want to.

ex $304 \div 19 =$ <u>16</u>	a $608 \div 19 =$ _____	b $456 \div 19 =$ _____
Computation: 	Computation: 	Computation:
Sketch: 	Sketch: 	Sketch:

3 If you need to, use the divisibility rules on page 67 to help answer these.

a Are any of the numbers above (304, 608, 456) divisible by 3? If so, list them here:

b Are any of the numbers above divisible by 6? If so, list them here:

c Are any of the numbers above divisible by 9? If so, list them here: