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| **DIVISIBILITY RULES**  The Rule for **2** : Any whole number that **ends in 0, 2, 4, 6, or 8** will be divisible by 2. |
| **Example: 456,791,824**  We can tell if 2 divides into this number without a remainder by just looking at the last digit.  456,791,824 - the last digit is a 4. This means that the number **is EVEN** and 2 will divide into it without a remainder. 456,791,824 is divisible by 2.    **Example: 34,807**   Check out the **last digit** of this number. 34,807 - the last digit is a 7. This means that the number is **ODD** and 2 will not divide into it evenly. There will be a remainder. So 34,807 is not divisible by 2.        The Rule for **4** : If the last two digits of a whole number are divisible by 4, then the entire number is divisible by 4.    **Example: 456,791,824**   For this rule, we will look at the last two digits: 456,791,824. Does 4 divide evenly into 24? Yes. That means that 4 will also divide evenly into 456,791,824 and there will be no remainder.    **Example: 723,810**   Again, we will take a look at the last two digits: 723,810. Does 4 divide evenly into 10? No. That means that 4 will not divide evenly into 7223,810 and there will be a remainder.       The Rule for **8**: If the **last three digits** of a whole number are divisible by 8, then the entire number is divisible by 8.   **Example: 456,791,824**  For this rule, we will look at the last three digits of the number: 456,791,824. Does 8 divide evenly into 824? YES, 8 goes into 824, 103 times without anything left over. So this number is divisible by 8.    **Example: 923,780**   Again, we will focus on the last three digits of the number: 923,780. Does 8 divide evenly into 780? NO, 8 goes into 780, 97 times with a remainder of 4. So this number is not divisible by 8   The rules for 2, 4, and 8 should all look similar. That is because these numbers are related.   **2 x 1** = **2**    **2 x 2** = **4**    **2 x 4** = **8**    The Rule for **5**: Numbers that are divisible by 5 **must end in 5 or 0**.   **Example:** **34,780**  For this rule we just look at the **last digit**: 34,780. The last digit is a 0, so this number is divisible by 5.   **Example: 13,569**  Again, look at the **last digit**: 13,569. The last digit is a 9, so this number is not divisible by 5.  The Rule for **10**: for a number to be divisible by 10, the last digit must be a 0.   **Example:23,890**   Take a look at the last digit: 23,890. The last digit is a 0. So this number is divisible by 10.   **Example: 85,395**  Take a look at the last digit: 85,395. The last digit is a 5. So this number is not divisible by 10. It has to end in 0 to be divisible by 10.    **Let's put it all together. Take a look at this example.**   **1,782,645,988**  🡪 This number ends in 8....  It is divisible by 2, but it is not divisible by 5 or 10.  🡪 This number ends in 88....  It is divisible by 4 because 4 goes into 88 evenly.  🡪 This number ends in 988....  It is not divisible by 8 because 8 does not go into 988 evenly.  **45,981,400**  🡪 This number ends in 0....  It is divisible by 2, 5, and 10.  🡪 This number ends in 00....  It is divisible by 4. (You might be thinking, "Hey, 4 doesn't divide evenly into 00", but it shows that 4 needs to go into a multiple of 100. 4 goes into 100 evenly, so it will go into multiples of 100 evenly as well.)  🡪 This number ends in 400....  It is divisible by 8 because 8 will go into 400, 50 times with no remainder.  **How/why are the divisibility rules helpful?** |

The divisibility rules help us to find factors of numbers. Instead of actually having to do the long division, we can use the rule to determine if the number is a factor first before dividing and getting an answer.

<http://www.youtube.com/watch?v=K1N4zZndqMs>