# Math Facts for the SHSAT

## Rules of Divisibility

| A NUMBER IS DIVISIBLE BY: | *IF* | | EXAMPLE |
|---|---|---|---|
| **2*** | it *ends* in an *even digit* (0, 2, 4, 6, 8). | | **54**<br>**(54 ÷ 2 = 27)** |
| **3*** | the *sum of its digits* is a *multiple of 3*. | | **51**<br>5 + 1 = **6**<br>**(51 ÷ 3 = 17)** |
| **4** | its *last two digits* are *divisible by 4*. | | **116**<br>**(116 ÷ 4 = 29)** |
| **5*** | it *ends* in the digit *0* or *5*. | | **60**<br>**(60÷ 5 = 12)**<br>45<br>**(45 ÷ 5 = 9)** |
| **6** | it's *divisible* by both *2* and *3*. | | **642**<br>6 + 4 + 2 = **12**<br>**(642 ÷ 6 = 107)** |
| **7** | the **difference is 0 or a multiple of 7** *after:*<br>• **doubling last digit** of number, then<br>• subtracting **product** from **remaining digits** | | **133**<br>**3 x 2** = **6**<br>**13 – 6** = **7**<br>**(133 ÷ 7 = 19)** |
| **8** | its *last three digits* are *divisible by 8*. | | **5,104**<br>104 ÷ 8 = 13<br>**(5,104 ÷ 8 = 638)** |
| **9** | the *sum of its digits* is a *multiple of 9*. | | **558**<br>5 + 5 + 8 = **18**<br>**(558 ÷ 9 = 62)** |
| **10** | it *ends* in the digit *0*. | | **60**<br>**(60 ÷ 6 = 10)** |
| **11** | the **difference** between the sum of its [positional] odd digits and the sum of its [positional] even digits **is 0 or 11**. | **0** | **891**<br>(8 + 1) – 9 = **0**<br>**(891 ÷ 11 = 81)** |
| | | **11** | **979**<br>(9 + 9) – 7 = **11**<br>**979 ÷ 11 = 89** |
| **12** | it is *divisible* by 2, 3, *and* 4 | | **240**<br>2 + 4 + 0 = **6**<br>**(240 ÷ 12 = 20)** |

***most important**