**Approved Supplemental Mathematics Reference Sheet—Grade 8**

***ONLY*** for use by students on the MCAS Mathematics test who have this accommodation listed in their IEP or 504 plan

**Note**: Students may NOT use a reference sheet on which the table has already been completed prior to the beginning of the test administration, and test administrators MUST check to confirm that they are providing students with blank sheets.

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| **General Problem-Solving Process** | **Order of Operations** |
| 1. Read/reread the problem for understanding.
2. Identify what the question is asking.
3. Make a plan to solve the problem. (*Choose at least one strategy.*)
	* Draw a picture.
	* Create a table, chart, or list.
	* Look for a pattern.
	* Work backwards.
	* Write a number sentence or an equation.
4. Solve the problem.
5. Reread the problem to see if your solution makes sense.
 | **PEMDAS**1. **P**arentheses (brackets, etc.)
2. **E**xponents
3. **M**ultiplication or **D**ivision (left to right)
4. **A**ddition or **S**ubtraction (left to right)
 |
| **GEMA**1. **G**rouping
2. **E**xponents
3. **M**ultiplicative operations (multiplication or division – left to right)
4. **A**dditive operations (addition or subtraction – left to right)
 |
| **Hundreds Chart** |
| Hundreds Chart | Hundreds Chart |
| **Properties** | **Fractions** |
| *
*
*
*
*
 |  |

|  |
| --- |
| **Place Value** |
|

|  |  |  |
| --- | --- | --- |
| Whole Numbers |  | Decimals |
| Hundred-thousands | Ten- thousands | Thousands | Hundreds | Tens | Ones | . | Tenths | Hundredths |
|  |  |  |  |  |  |  |  |  |

 |
| **Number Line** |
| Number Line |
| **Statistics** | **Coordinate Plane** |
| * Mean - Average
* Median - Middle
 | * Mode – Most often
* Range – Least to Greatest
 | *
* =

Coordinate plane |
| **Percentages and Proportions** |
| * if , then
 |
| **Ratios** |
| * Part:Part
* Part:Whole
 |
| **Divisibility Rules** |
|

|  |  |
| --- | --- |
| 2 | If the last digit is even |
| 3 | If the sum of the digits can be divided by 3 |
| 5 | If the last digit is 0 or 5 |
| 6 | If the number is divisible by both 2 and 3 |
| 9 | If the sum of the digits can be divided by 9 |
| 10 | If the last digit is 0 |

 |
| **Symbols** |
| * = absolute value of
 |

|  |
| --- |
| **Probability** |
|  |
| **Geometry and Measurement Abbreviations** | **Transformation** |
|  | * Translation – Slide
* Reflection – Flip
* Rotation – Turn
 |
| **Multiplication Table (NOTE: DO NOT COMPLETE THIS TABLE FOR THE STUDENT.)** |
|

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| X | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
| 1 |  |  |  |  |  |  |  |  |  |  |  |  |
| 2 |  |  |  |  |  |  |  |  |  |  |  |  |
| 3 |  |  |  |  |  |  |  |  |  |  |  |  |
| 4 |  |  |  |  |  |  |  |  |  |  |  |  |
| 5 |  |  |  |  |  |  |  |  |  |  |  |  |
| 6 |  |  |  |  |  |  |  |  |  |  |  |  |
| 7 |  |  |  |  |  |  |  |  |  |  |  |  |
| 8 |  |  |  |  |  |  |  |  |  |  |  |  |
| 9 |  |  |  |  |  |  |  |  |  |  |  |  |
| 10 |  |  |  |  |  |  |  |  |  |  |  |  |
| 11 |  |  |  |  |  |  |  |  |  |  |  |  |
| 12 |  |  |  |  |  |  |  |  |  |  |  |  |

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