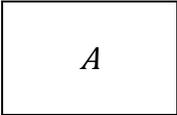| General Problem Solving Strategies | Order of Operations |
|---|---|
| 1. Read/reread the problem for understanding.<br>2. Identify what the question is asking.<br>3. Make a plan to solve the problem. (Choose at least one strategy.)<br>• Draw a picture.<br>• Create a table, chart, or list.<br>• Look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

| Formulas | Symbols |
|---|---|
| Area ($A$) of Rectangle $A = l \times w$<br>($l = length; w = width$)<br><br>Perimeter of Rectangle: $P = l + l + w + w$<br><br>Area ($A$) Model<br><br>$l$<br><br>[rectangle with $A$ inside, $w$ labeled on side]<br><br>Perimeter ($P$)<br>$P = distance\ around$ | $>$ is greater than<br>$<$ is less than<br>$=$ is equal to |

| Number Line |
|---|
|  |

**RICAS Grade 4**
**Approved Supplemental Mathematics Reference Sheet\***

| Conversions | | Divisibility Rules | |
|---|---|---|---|
| 1 year = 365 days<br>1 day = 24 hours<br>1 hour = 60 minutes<br>1 minute = 60 seconds | 1 pound = 16 ounces<br>1 foot = 12 inches<br>1 yard = 3 feet | 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 |
| 1 kilometer (km) = 1000 meters (m)<br>1 meter (m) = 100 centimeters (cm)<br>1 meter (m) = 1000 millimeters (mm)<br>1 kilogram (kg) = 1000 grams (g)<br>1 liter (L) = 1000 milliliters (mL) | | 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 |

## Place Value

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

## Hundreds Chart

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |
|---|---|---|---|---|---|---|---|---|---|
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |

| 91 | 92 | 93 | 94 | 95 | 96 | 97 | 98 | 99 | 100 |
|---|---|---|---|---|---|---|---|---|---|
| 81 | 82 | 83 | 84 | 85 | 86 | 87 | 88 | 89 | 90 |
| 71 | 72 | 73 | 74 | 75 | 76 | 77 | 78 | 79 | 80 |
| 61 | 62 | 63 | 64 | 65 | 66 | 67 | 68 | 69 | 70 |
| 51 | 52 | 53 | 54 | 55 | 56 | 57 | 58 | 59 | 60 |
| 41 | 42 | 43 | 44 | 45 | 46 | 47 | 48 | 49 | 50 |
| 31 | 32 | 33 | 34 | 35 | 36 | 37 | 38 | 39 | 40 |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 |
| 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

## Fraction Bars (Do NOT complete this table for the student.)