Math5900 Arithmetic Operations Notes

<u>Addition</u>

1. Set Model (**N, W, Z**)-->

   (a) 3 + 5
   (b) 3 + -5
   (c) -3 + 5
   (d) -3 + -5

2. Measurement Model (number line) (**N, W, Z**)-->

   (a) 2 + 6
   (b) 2 + -6
   (c) -2 + 6
   (d) -2 + -6

3. Base Blocks (**N, W**)-->
   132 + 69

4. Chip Abacus (**N, W**)-->
   167 + 429

5. Place Value Representation (**N, W**)-->
   245 + 366

6. Intermediate Algorithm (**N, W**)-->
   476 + 398

7. Lattice Method (**N, W**)-->
   532 + 748

8. Rectangular Cake (**F**)-->
   $\frac{1}{4}+\frac{1}{3}$

9. Pattern Approach (**Z**)-->
   5 + -3

Subtraction

1. Set Model (**N, W, Z**)-->
    (a) 8 – 3
    (b) 8 - (-3)
    (c) -8 – 3
    (d) -8 - (-3)

2. Missing Addend Approach (**N, W, Z**)-->
    (a) 6 – 2
    (b) 6 - (-2)
    (c) -6 – 2
    (d) -6 - (-2)

3. Measurement Model (**N, W, Z**)-->
    (a) 5 – 4
    (b) 5 - (-4)
    (c) -5 – 4
    (d) -5 - (-4)

4. Base Blocks (**N, W**)-->
    425 - 339

5. Chip abacus (**N, W**)-->
    257 - 173

6. Place Value Representation (**N, W**)-->
    324 - 167

7. Rectangular Cake (**F**)-->
    $\frac{3}{5} - \frac{1}{2}$

8. Pattern Approach (**Z**)-->
    12 - (-3)

Multiplication

1. Set Model (**N, W, Z**)-->
    (a) 4 x 6
    (b) 4 x -6
    (c) -4 x 6
    (d) -4 x -6

2. Base Blocks (**N, W**)-->
    158 x 3

3. Chip abacus (**N, W**)-->
    4 x 235

4. Place Value (horizontal format) (**N, W**)-->
    211 x 6

5. Intermediate Algorithm (**N, W**)-->
    312 x 41

6. Area Model (**N, W, Z, F**)-->
    (a) 42 x 13
    (b) 3 x 4
    (c) -3 x 4
    (d) -3 x -4
    (e) 3 x -4
    (f) $\frac{3}{4} x \frac{2}{5}$

7. Lattice Method (**N, W**)-->
    769 x 351

8. Pattern Approach (for Integers) (**Z**)-->
    5 x -4

Division

Partitive-->answers the question "How many in each group?"

Measurement-->answers the question "How many groups?"

1. Set Model (**N, W**)-->
   $15 \div 3$

2. Missing Factor Approach (**N, W, Z, F**)-->
   (a) $28 \div 7$
   (b) $\frac{1}{2} \div \frac{3}{8}$

3. Base blocks (**N, W**)-->
   $371 \div 3$

4. Chip abacus (**N, W**)-->
   $653 \div 4$

5. Scaffold Method (**N, W**)-->
   $7341 \div 26$

6. Intermediate Algorithm (**N, W**)-->
   $5461 \div 8$