PROOF OF NUMERIC CORRESPONDENCES

BY

SINGIZA IBRAHIM

sinhamsol@gmail.com

NOVEMBER 2017

ABSTRACT

The study of numeric correspondences helps us to know how numbers correspond to each other throughout the counting system. Each number in the counting system has to correspond to one of the natural numbers (1, 2, 3, 4, 5, 6, 7, 8, and 9). Numbers have got habitats which are called quadrats and each quadrat consists of 9 numbers. The topic will continue to explore formulas of listing quadrats easily through finding quadrat last numbers and beginning numbers.

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INTRODUCTION

The topic focuses on showing how all numbers in different quadrats are equivalent to the numbers in numeric locator (first quadrat). Numbers in counting system correspond to each other in that when the numeric sum is found is always equivalent to one of the natural numbers.

With the use of the numeric locator the numeric correspondence of various numbers can be found. This is so true when we can show that numbers correspond to each other through various quadrats.

NUMERIC CORRESPONDENCE

Numbers are considered to be corresponding in that when a single numeric figure is added to another to get a final single numeric figure is always equivalent to one of the numbers in the numeric locator (first quadrat) through all quadrats.

TERMS USED IN NUMERIC CORRESPONDENCE

Numeric locator

It is the arrangement of natural numbers one to nine (1, 2, 3, 4, 5, 6, 7, 8, and 9). They are used to show the numeric correspondence of other numbers throughout the counting system.

Quadrat

It is a habitat of nine numbers as countered from one up to infinity i.e. (1, 2, 3, 4, 5, 6, 7, 8, 9……)

Quadrats are listed in numbers from first one up to infinity.

Quadrats are always listed as;

$$\begin{pmatrix} 1, 2, 3 \\ 4, 5, 6 \\ 7, 8, 9 \end{pmatrix}$$

The above numeric arrangement is the first quadrat and also used as the numeric locator to other numbers.

The first quadrat contains nine numbers as well as the second, third, fourth, fifth quadrat and so on.

A quadrat is listed in two forms;

(a) The horizontal alignment

$$\begin{pmatrix} 1, 2, 3 \\ 4, 5, 6 \\ 7, 8, 9 \end{pmatrix}$$

(b) The vertical alignment

$$\begin{pmatrix} 1, 4, 7 \\ 2, 5, 8 \\ 3, 6, 9 \end{pmatrix}$$

NB

Throughout the proof I will be using the horizontal alignment but keep in mind that everything done with the horizontal alignment is done in the same way with the vertical alignment.

Every last number in a quadrat is always divisible by 3 and 9

Numeric sum

This is when a single digit is repeatedly added onto another to get a final single digit. Every number in the counting system must add up to one of the numbers in the first quadrat or the numeric locator.

For example;

(a) The numeric sum of 10 is 1+0=1

(b) The numeric sum of 19 is 1+9=10

1+0=1

(c) The numeric sum of 34 is 3+4=7

(d) The numeric sum of 37 is 3+7=10

1+0=1

(e) The numeric sum of 1075 is 1+0+7+5=13

1+3=4

NB

When any number in the counting system is added onto 9, its numeric sum is always equivalent to the same number it corresponds with in the numeric locator.

For Example

(a) 1+9=10
Numeric sum of 1 is 1
Numeric sum of 10 = 1+0=1

(b) 34+9=43
Numeric sum of 34 is 3+4=7
Numeric sum of 43 is 4+3=7

(c) 1009 +9=1018
Numeric sum of 1009 is 1+0+0+9=10
1+0=1
Numeric sum of 1018 is 1+0+1+8=10
1+0=1

ILLUSTATION OF QUADRATS

The following shows how numbers are written off in their quadrats;

1, 2, 3 4, 5, 6 7, 8, 9	First quadrat
10, 11, 12 13, 14, 15 16, 17, 18	Second quadrat
19, 20, 21 22, 23, 24 25, 26, 27	Third quadrat
28, 29, 30 31, 32, 33 34, 35, 36	Fourth quadrat
37, 38, 39 40, 41, 42 43, 44, 45	Fifth quadrat
46, 47, 48 49, 50, 51 52, 53, 54	Sixth quadrat

55, 56, 57	
58, 59, 60	
61, 62, 63	Seventh quadrat
, 65, 66	
, 68, 69	
70, 71, 72	Eighty quadrat
73, 74, 75	
76, 77, 78	
79, 80, 81	Ninth quadrat
82, 83, 84	
85, 86, 87	
88, 89, 90	Tenth quadrat
91, 92, 93	
94, 95, 96	
97, 98, 99	Eleventh quadrat

Quadrats continue in the same order up to infinity.

The first number in the first quadrat is 1 and it numerically corresponds to every first number in all quadrats For example;

1 in first quadrat corresponds to 10 in second quadrat, 19 in the third quadrat, 28 in the fourth quadrat, 37 in the fifth quadrat, 46 in sixth quadrat, 55 in seventh quadrat, 64 in eighty quadrat, 73 in

the ninth quadrat, 82 in tenth quadrat, 91 in the eleventh quadrats. All first numbers in all quadrats when add up they equal to 1

10 numerically correspond to 1;

1+0=1

19 numerically correspond to 1;

1+9=10

1+0=1

28 numerically correspond to 1;

2+8=10

1+0=1

37 numerically correspond to 1;

3+7=10

1+0=1

46 numerically correspond to 1;

4+6=10

1+0=1

55 numerically correspond to 1;

5+5=10

1+0=1

64 numerically correspond to 1;

6+4=10

1+0=1

73 numerically correspond to 1;

7+3=10

1+0=1

82 numerically correspond to 1;

8+2=10

1+0=1

91 numerically correspond to 1;

9+1=10

1+0=1

2 in first quadrat corresponds to 11 in second quadrat, 20 in the third quadrat, 29 in the fourth quadrat, 38 in the fifth quadrat, 47 in sixth quadrat, 56 in seventh quadrat, 65 in eighty quadrat, 74 in the ninth quadrat, 83 in tenth quadrat, 92 in the eleventh quadrats.

11 numerically correspond to 2;

1+1=2

20 numerically correspond to 2;

2+0=2

29 numerically correspond to 2;

2+9=11

1+1=2

38 numerically correspond to 2;

3+8=11

1+1=2

47 numerically correspond to 2;

4+7=11

1+1=2

56 numerically correspond to 2;

5+6=11

1+1=2

65 numerically correspond to 2;

6+5=11

1+1=2

74 numerically correspond to 2;

7+4=11

1+1=2

83 numerically correspond to 2;

8+3=11

1+1=2

92 numerically correspond to 2;

9+2=11

1+1=2

3 in first quadrat corresponds to 12 in second quadrat, 21 in the third quadrat, 30 in the fourth quadrat, 39 in the fifth quadrat, 48 in sixth quadrat, 57 in seventh quadrat, 66 in eighty quadrat, 75 in the ninth quadrat, 84 in tenth quadrat, 93 in the eleventh quadrats.

12 numerically correspond to 3;

1+2=3

21 numerically correspond to 3;

2+1=3

30 numerically correspond to 3;

3+0=3

39 numerically correspond to 3;

3+9=12

1+2=3

48 numerically correspond to 3;

4+8=12

1+2=3

57 numerically correspond to 3;

5+7=12

1+2=3

66 numerically correspond to 3;

6+6=12

1+2=3

75 numerically correspond to 3;

7+5=12

1+2=3

84 numerically correspond to 3;

8+4=12

1+2=3

93 numerically correspond to 3;

9+3=12

1+2=3

4 in first quadrat corresponds to 13 in second quadrat, 22 in the third quadrat, 31 in the fourth quadrat, 40 in the fifth quadrat, 49 in sixth quadrat, 58 in seventh quadrat, 67 in eighty quadrat, 76 in the ninth quadrat, 85 in tenth quadrat, 94 in the eleventh quadrats.

13 numerically correspond to 4;

1+3

22 numerically correspond to 4;

2+2=4

31 numerically correspond to 4;

3+1=4

40 numerically correspond to 4;

4+0=4

49 numerically correspond to 4;

4+9=13

1+3=4

58 numerically correspond to 4;

5+8=13

1+3=4

67 numerically correspond to 4;

6+7=13

1+3=4

76 numerically correspond to 4;

7+6=13

1+3=4

85 numerically correspond to 4;

8+5=13

1+3=4

94 numerically correspond to 4;

9+4=13

1+3=4

5 in first quadrat corresponds to 14 in second quadrat, 23 in the third quadrat, 32 in the fourth quadrat, 41 in the fifth quadrat, 50 in sixth quadrat, 59 in seventh quadrat, 68 in eighty quadrat, 77 in the ninth quadrat, 86 in tenth quadrat, 95 in the eleventh quadrats.

14 numerically correspond to 5;

1+4=5

23 numerically correspond to 5;

2+3=5

32 numerically correspond to 5;

3+2=5

41 numerically correspond to 5;

4+1=5

50 numerically correspond to 5;

5+0=5

59 numerically correspond to 5;

5+9=14

1+4=5

68 numerically correspond to 5;

6+8=14

1+4=5

77 numerically correspond to 5;

7+7=14

1+4=5

86 numerically correspond to 5;

8+6=14

1+4=5

95 numerically correspond to 5;

9+5=14

1+4=5 6 in first quadrat corresponds to 15 in second quadrat, 24 in the third quadrat, 33 in the fourth quadrat, 42 in the fifth quadrat, 51 in sixth quadrat, 60 in seventh quadrat, 69 in eighty quadrat, 78 in the ninth quadrat, 87 in tenth quadrat, 96 in the eleventh quadrats.

15 numerically correspond to 6;

1+5=6

24 numerically correspond to 6;

2+4=6

33 numerically correspond to 6;

3+3=6

42 numerically correspond to 6;

4+2=6

51 numerically correspond to 6;

5+1=6

60 numerically correspond to 6;

6+0=6

69 numerically correspond to 6;

6+9=15

1+5=6

78 numerically correspond to 6;

7+8=15

1+5=6

87 numerically correspond to 6;

8+7=15

1+5=6

96 numerically correspond to 6;

9+6=15

1+5=6

7 in first quadrat corresponds to 16 in second quadrat, 25 in the third quadrat, 34 in the fourth quadrat, 43 in the fifth quadrat, 52 in sixth quadrat, 61 in seventh quadrat, 70 in eighty quadrat, 79 in the ninth quadrat, 88 in tenth quadrat, 97 in the eleventh quadrats.

16 numerically correspond to 7;

1+6=7

25 numerically correspond to 7;

2+5=7

34 numerically correspond to 7;

3+4=7

43 numerically correspond to 7;

4+3=7

52 numerically correspond to 7;

5+2=7

61 numerically correspond to 7;

6+1=7

70 numerically correspond to 7;

7+0=7

79 numerically correspond to 7;

7+9=16

1+6=7

88 numerically correspond to 7;

8+8=16

1+6=7

97 numerically correspond to 7;

9+7=16

1+6=7

8 in first quadrat corresponds to 17 in second quadrat, 26 in the third quadrat, 35 in the fourth quadrat, 44 in the fifth quadrat, 53 in sixth quadrat, 62 in seventh quadrat, 71 in eighty quadrat, 80 in the ninth quadrat, 89 in tenth quadrat, 98 in the eleventh quadrats.

17 numerically correspond to 8;

1+7=8

26 numerically correspond to 8;

2+6=8

35 numerically correspond to 8;

3+5=8

44 numerically correspond to 8;

4+4=8

53 numerically correspond to 8;

5+3=8

62 numerically correspond to 8;

6+2=8

71 numerically correspond to 8;

7+1=8

80 numerically correspond to 8;

8+0=8

89 numerically correspond to 8;

8+9=17

1+7=8

98 numerically correspond to 8;

9+8=17

1+7=8

9 in first quadrat corresponds to 18 in second quadrat, 27 in the third quadrat, 36 in the fourth quadrat, 45 in the fifth quadrat, 54 in sixth quadrat, 63 in seventh quadrat, 72 in eighty quadrat, 81 in the ninth quadrat, 90 in tenth quadrat, 99 in the eleventh quadrats.

18 numerically correspond to 9;

1+8=9

27 numerically correspond to 9;

2+7=9

36 numerically correspond to 9;

3+6=9

45 numerically correspond to 9;

4+5=9

54 numerically correspond to 9;

5+4=9

63 numerically correspond to 9;

6+3=9

72 numerically correspond to 9;

7+2=9

81 numerically correspond to 9;

8+1=9

90 numerically correspond to 9;

9+0=9

99 numerically correspond to 9;

9+9=18

1+8=9

The method continues until infinity and it so tiresome. This is where we need to use calculations for easy finding of quadrats.

FINDING THE NUMERIC CORRESPONDENCE

Here you can find the numeric correspondence of any number without listing all quadrats. This is easier because if a number belongs for example in a millionth quadrat it's very tiresome to list those quadrats.

Terms used in finding numeric correspondence

Quadrat number

This is the position of each quadrat in the counting system i.e. first quadrat is represented by 1, second quadrat is represented by 2, third quadrat is represented by 3 and so on.

Each quadrat consists of nine numbers.

Quadrat number = (last number in the quadrat) / 9

Beginning number in a quadrat

This is a number that begins a quadrat.

Beginning number in the quadrat= (Quadrat number X 9) – 8

OR

Beginning number in the quadrat= Last number-8

For example;

The beginning number in the first quadrat = (1x9)-8=1

Last number in the quadrat

It is the last number in quadrat.

Last number in the quadrat = (quadrat number X 9)

OR

Last number in the quadrat = (Beginning number in a quadrat +8)

For example;

The last number in the first quadrat= (1x9) =9

EXAMPLE QUESTIONS

(i) List the 100^{th} quadrat

Solution

Given that;

Quadrat number = 100

Last number = quadrat number x 9

100 x 9= 900

Beginning number = last number -8

900 – 8 = 892

Therefore the 100^{th} quadrat is listed as;

$$\begin{pmatrix} 892, 893, 894 \\ 895, 896, 897 \\ 898, 899, 900 \end{pmatrix}$$

(ii) List the 1000^{th} quadrat

Solution

Given that;

Quadrat number =1000

Last number = quadrat number x 9

1000 x 9 = 9000

Beginning number = last number – 8

9000 – 8 = 8992

Therefore the 1000^{th} quadrat is listed as;

$$\begin{pmatrix} 8992, 8993, 8994 \\ 8995, 8996, 8997 \\ 8998, 8999, 9000 \end{pmatrix}$$

(iii) In which quadrat does 34 belong to?

Solution

Numeric sum of 34 = 3 + 4 = 7

Using the numeric locator

$$\begin{pmatrix} 1, 2, 3 \\ 4, 5, 6 \\ 6, 7, 8 \end{pmatrix}$$

Since 34 correspondents to 7, its quadrat is listed as below;

$$\begin{pmatrix} 27, 28, 29, \\ 31, 32, 33 \\ 34, 35, 36 \end{pmatrix}$$

Quadrat number= last number / 9

36 / 9= 4

Therefore 34 belongs to the fourth quadrat.

(iv) Show the numeric correspondence of 34 in the eleventh quadrat.

Solution

Given that;

Quadrat number is 11

Last number in the 11^{th} quadrat = quadrat number x 9

11 x 9 = 99

Beginning number in the 11^{th} quadrat= last number – 8

$$99 - 8 = 91$$

The 11^{th} quadrat is listed as;

$$\begin{pmatrix} 91, 92, 93 \\ 94, 95, 96 \\ 97, 98, 99 \end{pmatrix}$$

Since the numeric sum of 34 is

$$3 + 4 = 7$$

Using the numeric locator

$$\begin{pmatrix} 1, 2, 3 \\ 4, 5, 6 \\ 7, 8, 9 \end{pmatrix}$$

97 lies in the same position as 7 and its numeric sum is

$$9 + 7 = 16$$

$$1+6 = 7$$

Therefore the numeric correspondence of 34 in the eleventh quadrat is 97

CONCLUSION

Numeric correspondence is a true mathematical proof that shows how numbers correspond to each throughout all quadrats.

END