Arithmetical Progression

Is when a rank or Series of numbers differ orderly from one another, by some common number. To find the Sum of any Arithmetical progression, add the first and last numbers together, and Multiply that Sum by half the number of places and that product is the Sum. But if the number of places be odd multiply the Said number of places by half of the first and last added and the product is the Sum

1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16

What the Sum

16 last
1 First

17 Sum
8 half the number of places

136 Sum of the whole

Suppose a man hireth a room for a year, and agreeth to pay the first week 5D, the Second week 9D, and so for the third week 13D, So paying every week 4D, more untill 52 weeks or a year is finished, I Demand what the rent will come to, —— Answer £ 23 - 3 - 8

Here you are to consider that the common Increasing number is 4D, So that the last week must amount to 51 times 4 added to the pay of the first week, which is 5D, then will the last week come to 209 pence then work as in the Example,

D

12 | 5564

20 | £ 463 8

£ 23 " 3 " 8 Answer

51
4
Product 204
5
added 209 the last week
5 the first week
added 214
26 half the weeks in a year
1284
428
Pence 5564

A man hired a horse for a year and was to pay for the first week 5 ₰, and for the Second week 9 farthings and the third 13 ₰ and So on till the 52 weeks was finished what Did the hire of this horse come to Demand

51
4
Product 204
5
added 209 the last week
5 the first week
added 214
26 half the weeks in a year
1284
428 farthings
4 | 5564
12 | 1391 1/4
20 | 115 " 11
5 " 15 " 11 1/4 Answer

A man Sold A horse and giveth his Predeton a years time to pay for the Said horse (Viz) for the first week he was to pay 5 ₰, the Second week 9 ~~farthing~~ the third week 13 ₰, So paying 4 ₰ more every week untill the 52 weeks was finished what Did that horse Cost Demand

51
4 times 51
Product 204
5
added 209 the last week
5 the last week
added 214
26 half the weeks
1284
428 Shillings &c
20 | 5564
£ 278 " 4 Answer

Supp 8 numbers were sought by the Rule of Arithmetics progression how many places Does it contain Demand

8 last number
1 first number
9
4
36 Answer in numbers

Which is equal to thus perform,

1 number
2
3
4
5
6
7
8 last number
36 Answer as before

Suppose you had a piece of Tobacco Ground that lay three Square and the piece contained 60 rows and the longest row 60 hills deep and the shortest row 1 hill how many hills is in that field

last (Demand
60
1 first number
added 61
30 half the last number
1830 Answer

Here I will say to make this work the Show more plainely I will Suppose 6 rows of hills and the longest to have 6 hills and so every row to be one hill Shorter till it comes to one how many hills is in that piece of Ground Demand

6 last row
1 hill the first
7
3 half the last row
21 number of hills

Or Thus performed

Facit 21 hills Thus

What the sum
100 last
1 first number
added 101
50 half the last number
5050 Answer

What the Sum

15 last
1 first
Added 15
22 half the last
90
90
990 Answer

Equal to Thus performed

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
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26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
Added 990 Answer as before

Uneven numbers Thus performed

5
3
15 } Multiply the last number by the last and first or the half of it but not add the first to the last only to make your Multiplier

or Thus

1/2
3
1 1/2
5
15

Thus

What the Sum
15 last
Multiplier 8
120 Facit

15 added
2 | 16
8 Multiplier

Or Thus performed

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
120 Answer as before 86

What the Sum
55 last
28 half the first & last added
440
110
1540 Answer

What the Sum

7 last number
4 first number and half the last &C
Facit 28

Or thus Performed

1 first number
2
3
4
5
6
7 last number
Facit 28 as before &C

What the Sum

5 last number
3 Multiplier
Facit 15

What the Sum

9 last number
5 Multiplier
Facit 45

Or thus Proven &C

Facit 45 Thus

Count these Dots here above and they will Show you the nature of the rule of Arithmetical progression all them Dots makes 45 hills of Tobacco of Taters or any kinds of hills &C

What the Sum last

95 last
48 Multiplier
760
380
Facit 4560

95 last
1 first
2)96 added
48 Multiplier

Suppose you had a piece of Tobacco Ground that Lay in a Three Square and the longest row Contains 75 hills there every row one hill Shorter till it come Down to one hill how many hills Does the 75 rows Contain Demand

75 last number
38 Multiplier
600
225
2850 Answer

What the Sum the Sum is 45 rows hills 45 longest row

23 Multiplier
135
90
1035 Answer

Finis August 16th Day 1793

Geometrical Progression

Suppose one Sold 12 Ells of Cloth to receive for the First ell 1D, the Second 2 D. the third 4D, and so on Doubleing what is paid for the 12 Ells?

0, 1, 2, 3, 4, 5, 6
1, 2, 4, 8, 16, 32, 64

32
108
192
2048
2
12 | 4096 Pence
210 | 341 " 4
£17 " 1 " 4 Answer

Note, That if this Question had been for a Farthing a button or the like, the Answer would have been Farthings

Example

Suppose one Sold a horse having 4 Shoes, and every Shoe 6 nails, to receive for the first nail 1 farthing the Second nail 2 farthings, the third nail a penny, and so Doubleing, how much is paid for the last nail, and the price of the horse

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12,
1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096.

8388608 ~~Farthings~~
2
Just 16777216 farthings

2048
32768
16384
8192
Just 8388608 Far.

If this Question had been of a Coat Sold at a barley Corn a button, and so Doubleing to 24 buttons (ac counting 900 corns to a pint) I Divide the 16777216 by the 900 Corns; the Quotient gives about 11641 Pints, which Divide by 64 (the pints in a bushel) the Quotient gives about 262 Bushels, or about 36 Quarters of barley for the Coat.

I Suppose a man Sold A house having two Shoes on each Shew having Six nails to receive for the first nail 1 farthing for the 2 nail two farthings and for the third nail 4 farthings or a penny and so Doubleing till the last nail what Did the house come to. I Demand

0, 1, 2, 3, 4, 5, 6.
1, 2, 4, 8, 16, 32, 64.

32
128
192
2048 farthings
2
1096 farthings
4 | 1096
12 | 1024
20 | 85 " 4
4 " 5 " 4 Answer

Suppose a Man Sold a Coat that had on it 24 buttons to receive for the first button 1 farthing the Second 2 farthing the third a penny and so Doubleing till the 24 buttons was finished what Did the Coat Cost Demand

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12,
1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096.

4096
12288
18432
81920
8388608
2
16777216 farthings

4 | 16777216 farthings
12 | 4194304
20 | 349525 - 4
17476 - 5 - 4 Answer

Suppose a Man Sold a Coat that had on it 24 buttons to receive for the first button 1 Grain of Corn for the Second 2 Grains and for the third 4 Grains & so Doubleing till the 24 buttons were finished how much Corn did that Coat cost Allowing 400 Grains of Corn to the pint Demand

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12,
1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096.

Grains
400 | 16777216 | 41943 Answer in Pints
1600
777
400
3772
3600
1721
1600
1216
1200
16

4096
12288
18432
81920
8388608
2
16777216 Grains of Corn

16/4/2
400/100/50 of a pint &c

a horse

Suppose a man sold a Smith that had on four Shoes and each Shoe had 6 Nails and to receive for the first nail 1 penny for the Second 2 pence for the third Nail 4 pence &c. Doubling until the 24 Nails were finished what Did the Last nail Come to, and the whole Amount of the horse

Demand Thomas Perry August 19th Day 1793

0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12.

1, 2, 4, 8, 16, 32, 64, 128, 256, 512, 1024, 2048, 4096

4096 Last Nail

12288

18432

81920

8388608

2

12 | 16777216 Pence

2p | 1398101 1-4

69905 1-1-4 Answer

Second Geometrical Progression August 19th day 1793

By Tom Perry