(1808) Rule for the Direct Rule of three.

Of the three numbers two always contain a supposition & one a demand; the one on which the demand lies, must always be the third in stating; of the remaining two, there will always be one of the same kind as the third, which must be put first; therefore

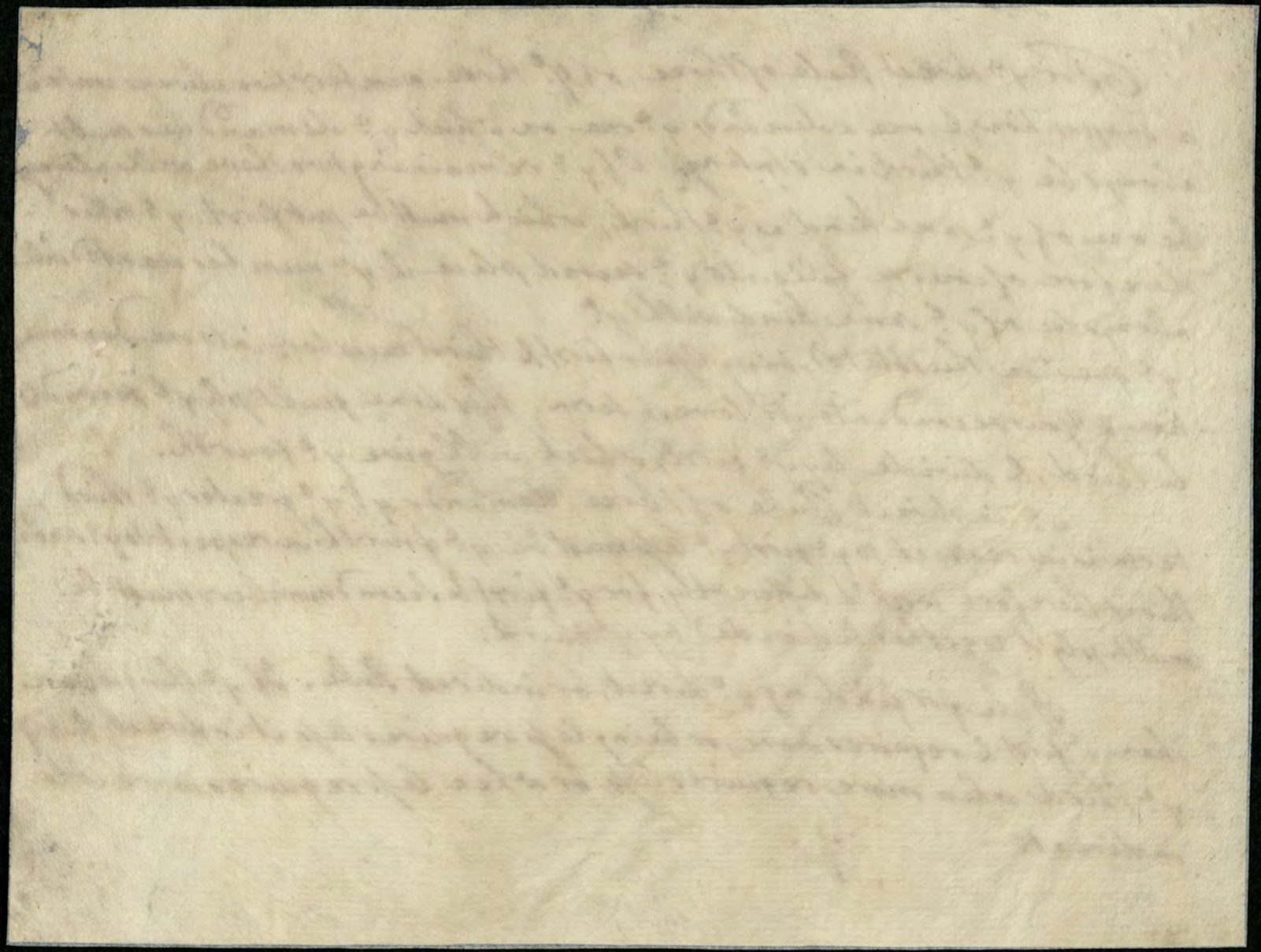
GEO. ADAM. MSS 32 (1809)

For y^e direct Rule of three, of y^e three numbers two always contain a supposition, & one a demand, y^e one on which y^e demand lies must always be y^e third in stating. Of y^e remaining two there will always be one of y^e same kind as y^e third, which must be put first. y^e other therefore of course falls into y^e second place, & y^e number wanted will always be of y^e same kind with y^t

y^e question thus stated, bring Your first & third numbers into one denomination, & Your second into its lowest term; this done multiply y^e second & third, & divide by y^e first, which will give y^e fourth.

y^e indirect Rule of three, demands y^t y^e greater y^e third term is in respect to y^e first y^e less must be y^e fourth in respect to y^e second; this is therefore work'd differently, for y^e first & second numbers must be multiply'd together & divided by y^e third.

Rule for finding y^e direct, or indirect Rule. If y^e third is more than y^e first & requires more, or being less requires less, it is direct; but if y^e third when more requires less, or when less requires more it is indirect.



14
8
11 2
14
98
52
150

A There were 52. Sticks in y^e^ first bundle, they increase by 4. & y^e^ last was 150

150
52
14) 98 (7
98

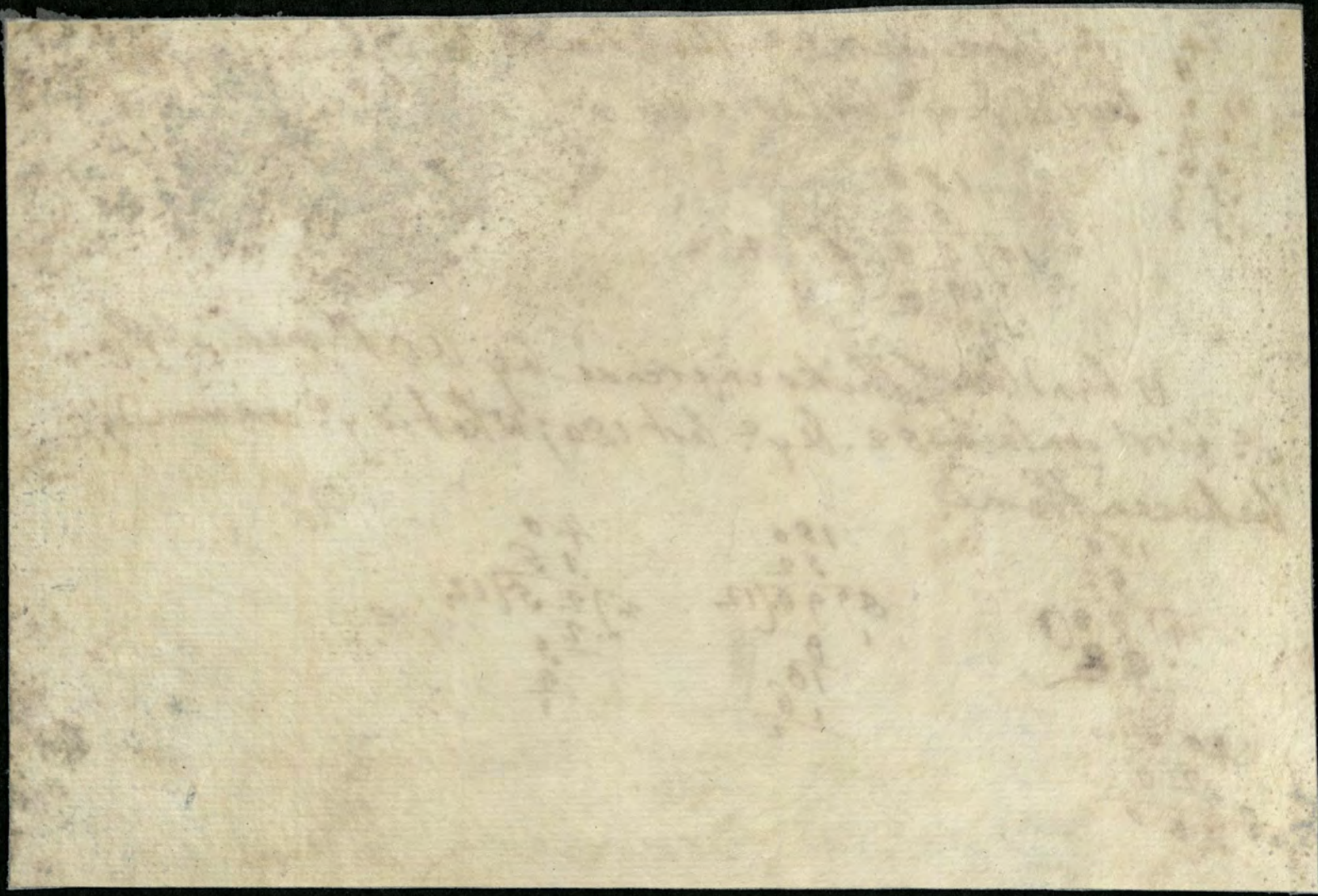
8 bundles of sticks increase by Arithmetical Pro.
y^e^ first contains 52. & y^e^ last 150; what is y^e^ common difference between them?

150
52
14) 98 (7
98

150
52
8) 98 (12
8
18
16
2

40
15
2) 25 (12
2
5
4
1

400
20
380



GEO. ADD. MSS
132 (1811)

Questions in ye Double Rule of three.

Qu. 1. If 12 Trees are planted by 2 men in 6 days; how many Trees shall be planted by 8 men in 24 days? answ. 192.

2 : 6 : 12
8 : 24 : 2 = 6/12

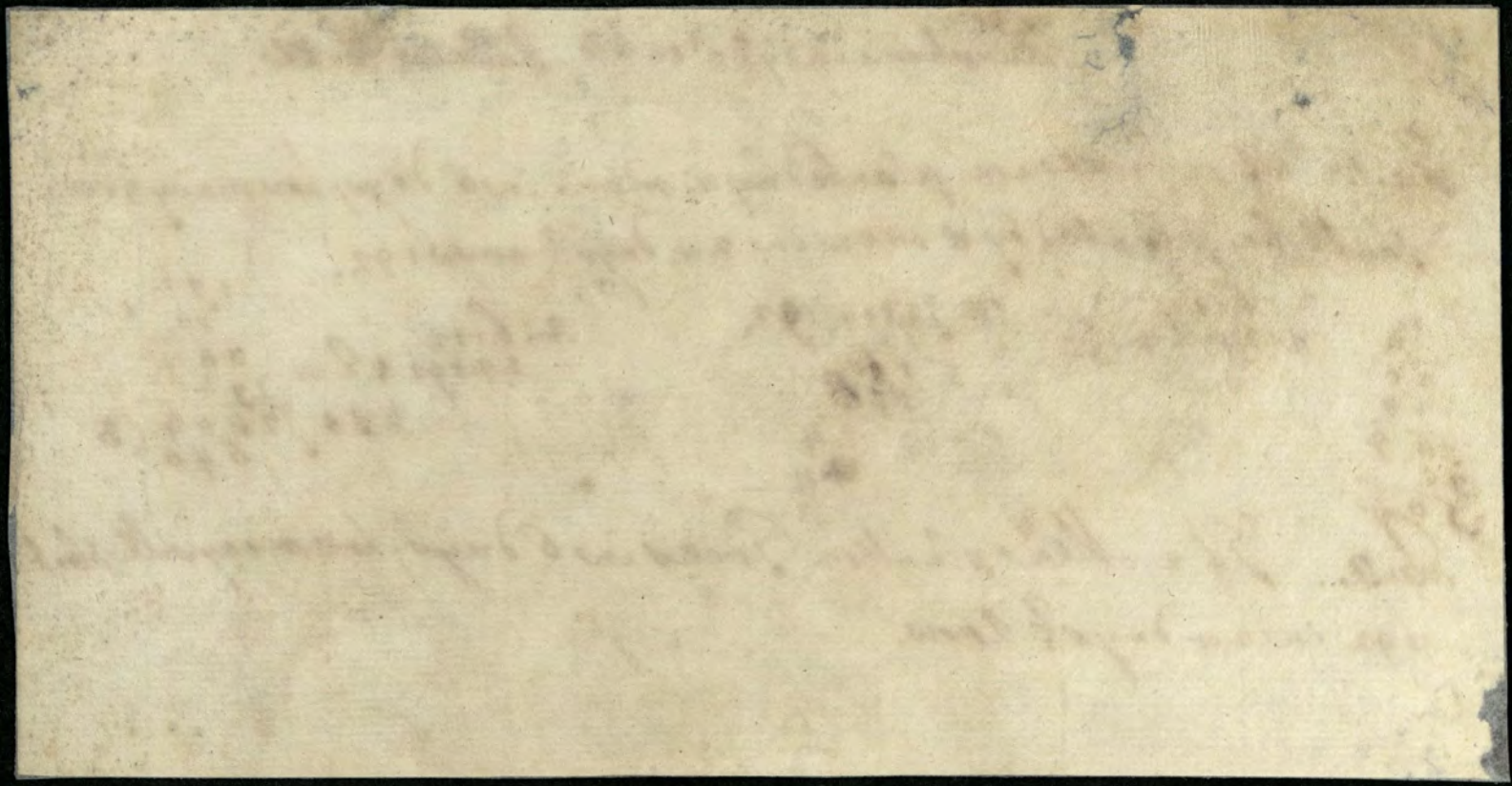
12 / 8
96
24
384
192
3304

12) 2304 (192
12
110
108
24
24
0

2 : 6 : 12
24 : 192 : 2 =

192
12
384
192
288) 2304 (8
648

Qu. 2. If 2 Men plant 12 Trees in 6 days; how many will plant 192. in 24 days? Answ.



GEO ADDL. MSS 32

(1812)

Inverse Rule of Three

Qu. 1. What number of Men must be employ'd to finish in 12 days, what 45 Men would be 35 days about? Answ. 125 Men

35 : 45 :: 12 : ? = 125 men.

45
105
140
12) 1505 (125
12
30
24
65
60
5

5 : 420 :: 3 : ? = 700 yards

5
3) 21 00 (700
21

Qu. 2. How many yards of Stuff 3 qrs. wide, will hang a Room, which requires 420. yards of 5 qrs. wide? Answ. 700 yards.

Qu. 3. If I lend A. 1362. for 3 months, how long must keep 420 £. of his, to requite myself?

6 : 52 :: 2 : ? = 156

6
2) 312 (156
2
11
10
12
12
0

312 156
2
312

2, 4. 6. 8. 10. 12. 14. 16. 18. 20. 22. 24. 26.

24 26 14
2 2 14
28 28

6

16
2
10 = 8 + 10
6
36

14
12
26

42 42 65
6 6 30
2 12

14
2
8 1 2 3
12. 18.

GEO. ADDL. MSS 32 (813)

1. A Man carried 8 bundles of sticks, everyone exceeding y^{e} former by 14. y^{e} last contained 150. how many did y^{e} first? Ans^{r}. 52.

2. 8 bundles of sticks, everyone exceeding y^{e} former by 14, y^{e} first contain'd 52; How many did y^{e} last? Answer. 150.

3. A Soldier march'd 15 miles y^{e} first day, he encreas'd one mile every day after; he went 420 miles y^{e} last day; therefore how many days worke on his march? Answer. 13 days.

---

1. I went from London to Rome, my first day's journey was 10. miles; my last 65. I encreased 5 miles every days journey. How many days did I travel & how many miles? 12 days & 420 days.

2. I bought 20 Statues, for y^{e} 1st I paid 2 £, for y^{e} last 40 £. what does y^{e} whole come to? 1440 £.

3. I went in 8 days 480 miles, each days journey was greater than y^{e} former by 4 miles. my last days journey was 74 miles, how many miles did I travel y^{e} 1st day? 54 miles.

GEO. ADDL. MSS
(1814)

Manner of stating

3d Double Rule of Three y^e quick terms are five; where of three are antecedent viz conditional, or supposition; y^e other two consequent & demand y^e question; of which nature y^e sixth term is; so y^t three are antecedent & three consequent.

2. Of y^e three conditional terms y^t which is y^e principal cause of loss or gain, increase, or decrease; passion & action must be in y^e first place; distance of place, space of time &c in y^e second, & y^e remaining part in y^e third: then y^e noun which y^e demand lies, must be plac'd under y^e other two as to correspond Mutually.

Manner of Working

If y^e blank, or place sought fall under y^e third term multiply y^e three last terms for a dividend; & y^e two first for a divisor, & y^e quotient will give y^e sixth.

But if y^e blank fall under y^e first, or second term, multiply y^e first, second, & fifth, for a dividend. & y^e third & fourth for a divisor, & y^e quotient will give y^e sixth.

1. If 12 trees are planted by 2 men in 6 days, how many trees shall be planted by 8 men in 24 days?

2 : 6 :: 12
8 : 24 : 2 = 192

12
24
8
192
12
2304

12) 2304 (192
12
110
100
24
24
6

2 : 6 :: 12
8 : 24 : 192
192
12
384
192
200) 2304 (8
2304

24
12
48
24
200

200 6
6
1200
200
2006
200
2304

50 : 10 : 10
140 : 24 : 2 = 33 days

2. If a man plant 12 trees in 6 days; how many will plant 192 in 24 days?

3. If 50 men build a fort in 10 days working 10 hours pr day in how many days will 140 men build y^e same working 12 Hours a day each man give. 33 days.

GEO. ADAM. 1815 HSS 32

I. For y^e Direct Rule of three, of y^e three numbers two always contain a supposition, & one a demand, y^t one on which y^e demand lies must always be y^e 3^d in stating; of y^e remaining two, there will always be one of y^e same kind as 3^d which must be put 1^st in y^e other: therefore of course falls into y^e 2^d place, & y^e number wanted will always be of y^e same kind with it.

2. When Your question is thus stated, bring Your 1^st & 3^d numbers into one denomination, & Your 2^d into its lowest terms, this done multiply y^e 2^d & 3^d & divide by y^e 1^st which will give y^e 4^th.

II. As to y^e Indirect Rule of three, if demand by y^e 4^th be greater y^n 3^d term is in respect to y^e 1^st, y^e less must y^e 4^th be in respect to y^e 2^d: this is therefore work'd differently, for y^e 1^st & 2^d numbers must be multiplied together, & divided by y^e 3^d.

Rule for finding if Direct, & Indirect Rule.

If y^e 3^d is more than y^e 4^th & requires more, or less & requires less, it is direct; but if y^e 3^d when more & requires less, or less & requires more it is indirect.

III. As to y^e Double Rule of three, y^e given terms are five, where of three are antecedent viz. conditional, or supposition & other two consequent, & demand y^e question: of which nature y^e 6^th term is; so y^t three are antecedent & three consequent.

1 2.

7 GEO. ADDL. MSS 32

(1816) 100 Soldiers march 10 miles

a 2 3 4
60. 30. 120
30

Geometrical Progression is y^e increase of decrease of any rank of numbers by an equal ratio, y^t is by continual multiplication or continual Division. 2. 4. 8. 16. 32. is Geometrical Progression increasing, & 900. 300. 100 &c. is Geometrical Progression decrease by a continual Division of three.

Rule 1^o. in any Rank of odd Number or terms in this Progression y^e product of y^e middle term multiply'd by itself is equal to y^e product of y^e two extreme or of any two terms equaly distant.

~~A Man walks 12 mile~~

(1817) A man is to carry 100 stones one by one, which are at 5 foot distance from each other, ye first is 10 foot from ye basket how far will he go. 500 foot

2. 4. 6. 8. 10. 12. 14. 16. 18. 20. 22. 24. 26. 28. 30

1. 3. 4.

10. 5.

[illegible]. 100

30
31
30
90
2) 930 (
2) 465 (2 32
4
6
6
54
1

32
30
960
480
240

55

10
15
20
25
30
35
40
45
50
55
100

14
10
140
160

274

1
2
3
4
5
6
7
8
9
10

9
8
0
72

1
8
12
16
20
24
28
108
28
80
24
56

6 6
12 4
24

426.

12
4
48
48
96

36
2
144

24.

36
3
108

6
6
48

25
50

.100. 5.

16
15
32

20+500=520

36.

20
25
35
40
45
50
55
60
65
70.10
75
80
85
90
95
100
5
10
15
2010

125
30
35
40
45
50
55
60
65
70
75
80
85
90
95
200
5
10
15
20.10

225
30
35
40
45
50
55
60
65
70.10
75
80
85
90
95
300
5
10.10
15
20
25
30
35
40
45
50
55
60
20 10

375
80
85
90
95
400
5
10
15
20.10
25
30
35
40
45
50
55
60
65
70.10
75
80
85
90
95
500
6

10
10
10
10
10
10
10
10
1 6
96

[illegible]

Qu. 1 12 : 10 :: 8 : 9 =

12 / 10 / 120

8) 120 (15 / 8 / 40 / 40

144 : 12 :: 216 : 8 =

base 144 requires 12 in. heigh to make a solid ft. how many inches 216 ing require

12 / 12 / 144 / 12 / 288 / 144 / 1728 in.

12 . 16

12 : 12 :: 16 : 2

12 / 12 / 24 / 12 / 16) 144 (9 / 128 / 144

16 / 9 / 144 / 16 / 8

Qu. 2. 144 : 12 :: 216 : 2

12 / 288 / 144 / 216) 1728 (8

Qu. 1 12 : 10 :: 8 : 2 = 15

Qu. 2. 144 : 12 :: 216 : 2 = 8

Qu. 3. 12 : 12 :: 16 : 2 = 9

42 / 42 / 84 / 168 / 12) 1764 (147 / 12 / 56 / 48 / 84 / 84

3 – 6 / 3 – 6 / 9 / 1 – 6 / 1 – 6 / 3 / 12. 3

4 – 5 / 4 – 5 / 16 / 1 – 8 / 1 – 8 / 20 / 19 – 6 1/12

36 / 36 / 216 / 216

144 | 2376 | 16 / 144 / 936 / 864

6 – 6 / 6 – 6 / 39 6 / 3 3 / 3 3

18 / 18 / 144 / 18 / 12 | 324 | 27 / 24 / 84 / 84 / 624 / 3 46

12 | 237 6 | 19 / 12 / 117 / 108 / 96

145 / 12 / 9 / 45 / 4 / 5

13 / 13 / 39 / 13 / 169

12 | 169 | 14 / 12 / 49

39 / 12 / 78 / 39 / 468 / 4

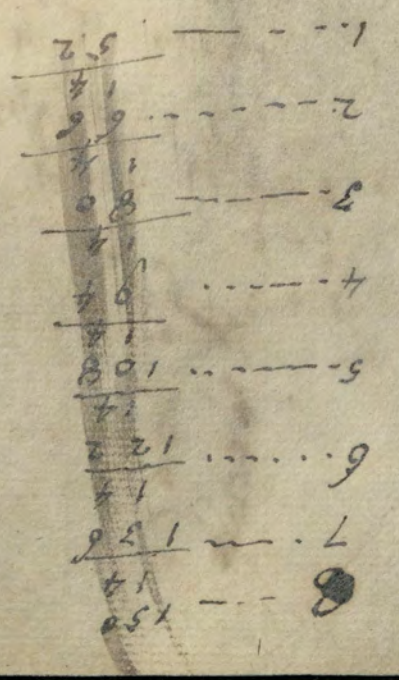
1 – 1 / 1 – 1 / 1

1 – 6 / 1 – 6 / 6 6 / 6 3 / 3 / 1

36 / 3 12 / 72 / 36 / 432

39 / 13 / 36 / 6

12 | 6084 | 57 / 60



GEO. ADDY
32 (814)

If 50 men build a fort in 18 days, working 16 hours per day,
in how many days will 140 men build y^e same working 12 hours per day ans.

Answ. 37 days. 9. Hours 36 min.

50 : 16 : 18
140 : 12 :

50 / 16 / 800 / 50 / 800

140 / 18 / 1120 / 140 / 2520 (3
2400
120

2520 / 12 / 30240 / 2520 / 30240. (37
800
2400
6240
5600
640
12
1280
640
800) 7600 (9
4200
4800
4600
800) 26800 (36
2400
4000
4800
800
800
4200

months 3 : 4 2 : 2 = 3 months. 2 weeks 6 days

days 46 : 32 :: 55 : 2 = 26 days. 9 hours : 9 min

42)4 0 8 (9
3 7 8
3 0
42)1 2 0 (2
8 4
4 6
42)3 2 2 (7
2 5 2
7 0
2 4
2 8 0
14 0
42)1 6 8 0 (40
1 6 8

32
92
138
55)147 2 (2 6
110
372
330
152
24
608
304
55)3 6 4 8 (9
4 9 4
3 0 5 4
6 0
55)1 8 3 2 4 0 (9
4 9 4
6 3 0

1539
660
12)879

12 :: 1539 :: 21 : 2 =
12
3078
1539
21)18468 (9
168

2)18469

50 : 16 : 30
140 : 12
80)2680 (33
240
280
240
20
50
16
300
50
800
16
12
32
16
192
mon 16 hours 10 days
50
140
12
800)2680 (3
2400
1260
140
280
192
140
3
5666
1608
804
268
3
480
240
86
6
5

GEO. ADD 32

(1821)

12 : 1559 :: 21 :
132
21) 3078 (146
21
97
84
126
12

months weeks days

15 : 5 :: 42 : 2 = 9

21) 10468 (879
168
166
147
198
189
9

879
660
1559

10468 879
21
879

12 : 2000 :: 21 : 2
10 : 2000 :: 20 : 2 = 1000

12 : 1559 :: 21 : 2
10 : 1559 :: 20 : 2

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80.000.000q.

80,000.000q = 20.000.000d = 1.666.666s = 83.333£

1000£ = 20.000s = 240.000d = 960.000q

20.000 × 20 … 240.000 × 12 … 960.000 × 4

12) 65 (5

4) 80,000.000 (20,000.000

12) 20,000.000 (1,666,666

20) 1,666,666 (83.333

GEO. ADDL. MSS 32 (1823)

10 ye first term.
65 ye last.

65
10
~~650~~

75
11
75
15
2250

2)225(12
2
22
54
1
1
3

1.0.15.20.25.30.35.40.45.50.55.60.65
1 2 3 4 5 6 7 8 9 10 11 12.

3. 1 2.
20. 24.120

3 4 2 5
8. 400. 4. 79 400

60
12
72
20
1440

1.2.3.4.5.6.7.8.
400.200

52.56.60 64.68.71.75.79
1 2 .3.4.5.6.7.8..

1.52.
2.56.
3.60.
4.64.
5.68.
6.71.
7.75.
8.79
603
480
123

79 1
4
75 2
4
71 3
4
67
4
63.

79
75
71
225

79
4
83
79
747
501
4)5751(1475
4
17
16
15
12
37
35
2

100
70

10 [illegible]
11 60
17 60
70
70
14 70
440
0

34
7
41

200

100
70
0

1 2 3 4 5 6 7 8
40. 44.48.52.56.60.64.68

79
68
11

1 2 3 4 5 6 7 8
51.55.59.63.67.71.75.79

10
10
10
10
40

460

2. 4. 6. 8. 10. 12. 14. 16. 18.

12 | 13
12
26
13
156
86
48
24

4) 15 6 (39
12
36
36

2
20
9
180
90

20
18
160
2
2) 36.0 (180
2
16
16

3, 9, 12, 15

1, 2, 3, 4, 5, 6, 21
7, 8, 9, 10, 11, 12
78

90 = 90

12 = 3 × 4 = 12

18
2
2) 16 (9

8) 16 (2

How many strokes does a clock strike in striking 4?
12. Hours.

14
12
28
14
168
84
42

3. 6, 9, 12
30.
15
156
76

12
1
13.
12.

90.

13
12
20
13
15

1 2 3 4 5 6 7
55. 59. 63. 67. 72. 75. 79
1 2 3 4 5 6 7 8 9 10 11 12
10. 15. 20. 25. 30. 35. 40. 45. 50 55. 60. 65. 70. 75. 80. 85. 90. 95. 100. 105.

6 hours = 7 × 20 = 140
30

GEO. ADDL MSS
82 A man walks at 20 different times 20 hours

(1824) 2. 1.
100. 2
20. 2.

100
2
9)98(10
9
1

4
6
8
10
12
14
16
18
20

2. 4. 6. 8. 10. 12. 14. 16. 18. 20. 22 24. 26 28. 30 32. 34 36. 38. 40 42.

42+2=44.

2+42=44
4+40=
6+38=
8+36=
10+34=
12+32=
14+30=
16+28=
18+26=
20+24=
22+22=
24+20=
26+18

2. 4. 6. 16.

24+22= 40+4=44 38+

2. 12. 22. 32. 42. 52. 62. 72. 82. 92

92+2=94.
82+12=94
72+22=94
62+32=94
52+42=94

2. 6. 10. 14. 18. 22

22+2=24
18+6=24
14+10=24

100. 90. 80. 70. 60. 50 40. 30. 20. 10.

100+10=110.
90+20=110
80+30=110 &c.

A man carries 6. Candles of Sticks, every one exceeding y^e former
by 24. y^e last was 96; what was y^e first. answer 36

24 156 246 160 40
5 120 184 36
120 36 24 196
160

A man carries 6 bundles of Sticks every one exceeding y^e
former by 24. in y^e first bundle there were 36. Sticks how many in
y^e last?

184 196 14 200 200
24 120 7 98 98
160 176 98 102 102
2. 6. 60
6 6
54

12 100
11 98
12 2
12
132

156
132
24

8 bundles. etc. 14. 100

150 1=52
98 2=66
52 3=80
4=94.
5=108
6=122
7=136
4=150

1 bundle. 2. 16.

122
108
14

1=2
2=16
3=30
4=44
5=58
6=72
7=86
8=100