

**A KEY TO THE
INTRODUCTION TO THE
NATIONAL ARITHMETIC**

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A Key to the Introduction to the National Arithmetic by Benjamin Greenleaf

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BENJAMIN GREENLEAF

**A KEY TO THE
INTRODUCTION TO THE
NATIONAL ARITHMETIC**

A
KEY
TO THE
INTRODUCTION
TO THE
NATIONAL ARITHMETIC,
EXHIBITING THE OPERATION OF
THE MORE DIFFICULT EXAMPLES
IN THAT WORK;
FOR THE USE OF TEACHERS ONLY.

By BENJAMIN GREENLEAF, A. M.
PRINCIPAL OF BRADFORD TEACHERS' SEMINARY.

New Stereotype Edition.

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1854.

P R E F A C E.

THE object of the author, in this publication, is to aid the teacher in communicating instruction to his pupils, and in detecting any error, which they may have made in the operation of the examples.

Every instructor, who has a large number of scholars under his care, is aware, that it is a great tax on his time, especially when in school, to examine the operation of many arithmetical questions; whereas, by the aid of a Key, he may readily detect any mistake in the operation. Besides, amid the labors of the school-room, it is often very difficult for the most able arithmetician to recollect, at the moment, all the principles involved in the solution of difficult questions; but, by recurring to a Key, this difficulty will be obviated.

The author would recommend to teachers, never to point out *directly* to the pupil the method of solving a problem, nor perform the labor for him, but suggest and explain such principles, as will enable him to perform the question himself.

The answers to all the examples in the Arithmetic are inserted in the Key, for the convenience of those teachers, who may prefer to use the edition of the Arithmetic, which does not contain the answers.

B. GREENLEAF.

Bradford, March 28, 1849.

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KEY

TO

GREENLEAF'S INTRODUCTION.

NOTATION AND NUMERATION.

ROMAN NOTATION.

2. (ART. 3, p. 8.)	LXXXVII.	6.	DXLII.
3.	CX.	7.	MCCCXIX.
4.	CLXIX.	8.	MDCCCXLVIII.
5.	CCLXXV.		

FRENCH NOTATION AND NUMERATION.

1. (ART. 13, p. 13.)	47	10.	408,096
2.	359	11.	5,402
3.	6,575	12.	907,805,074
4.	908	13.	347,915
5.	19,000	14.	89,047
6.	1,504	15.	51,081
7.	27,000,500	16.	7,395
8.	99,099	17.	57,659,099,047
9.	42,002,005		

ENGLISH NOTATION AND NUMERATION.

1. (ART. 16, p. 15.)		325,412
2.		214,165 ; 078,056
3.		42 ; 617,031 ; 041,342
4.		2,008 ; 009,082 ; 701,908
5.		168,247 ; 324,341 ; 472,319 ; 816,421

ADDITION.

3. (Art. 21, p. 21.)	978	7.	698
4.	889	8.	999
5.	998	9.	439
6.	669	10.	868
10. (Art. 24, p. 23.)	3555	38.	76833457
11.	3212	39.	1111110
12.	1922	40.	9323
13.	3175	41.	7693486
14.	27891	42.	3155917
15.	289486	43.	2643
16.	354409	44.	1039
17.	347514	45.	227934
18.	382898	46.	63315
19.	26027511	47.	2373544
20.	1366855	48.	8272 dollars.
21.	6908906	49.	131 trees.
22.	142885	50.	1563 pounds.
23.	21616	51.	2103 dollars.
24.	766503	52.	2257 dollars.
25.	18814	53.	500 dollars.
26.	969754	54.	9115 dollars.
27.	11720	55.	2234822
28.	31622	56.	5073577
29.	949661	57.	4597824
30.	86678	58.	4984097
31.	539658	59.	172246
32.	87372	60.	95947
33.	848840	61.	102201
34.	1000779	62.	100536
35.	694764	63.	113378
36.	156800	64.	86621
37.	1802790		

SUBTRACTION.

8. (Art. 32, p. 32.)	47896	27.	89901
9.	265899	28.	90909091
10.	587544	29.	999991
11.	377778	30.	2967
12.	9393239696470	31.	99995000
13.	1	32.	767 dollars.
14.	471112	33.	39 years.
15.	981012	34.	105 years.
16.	1	35.	366
17.	9998392	36.	219327 inhabitants
18.	6097700810072	37.	85423333 pounds.
19.	7977100909213	38.	1176249 bushels.
20.	7100061569937	39.	3528 dollars.
21.	500710920069	40.	18 dollars.
22.	1	41.	7965037 dollars.
23.	455555556	42.	577904
24.	6753086431	43.	2568 acres.
25.	799690466	44.	49841021 miles.
26.	24974975		

MULTIPLICATION.

9. (Art. 36, p. 38.)	6910677	14.	50246229
10.	7012310120	15.	60725 dollars.
11.	53580296	16.	228456 dollars.
12.	24881935	17.	27918 letters.
13.	105185376		
(Art. 40, p. 41.)		12.	10989 dollars.
8.	611 dollars.	13.	13505 miles.
9.	2813 dollars.	14.	8760 hours.
10.	35599 dollars.	15.	5481 gallons.
11.	1853654 dollars.	16.	200451 dollars.

KEY TO

17.	68816 pounds.	26.	532088
18.	321300	27.	3831635
19.	518077	28.	1462126
20.	881919	29.	264640056
21.	9691886	30.	99070437
22.	18219071	31.	826888542
23.	70287492	32.	290355807
24.	153288487686	33.	721361144
25.	49062189937808	34.	3798979491

2. (Art. 42, p. 43.)	765825	6.	2851200 inches.
3.	123396	7.	631152 hours.
4.	611226	8.	68520 feet.
5.	987625		

2. (Art. 43, p. 44.)	23560	4.	7964000
3.	587300	5.	9872500000

(Art. 44, p. 45.)		9.	69660900000000
4.	72103581726800	10.	910089999000
5.	490154012100000000	11.	24010024010000
6.	28522743249000	12.	400400800400400
7.	4179911100000	13.	1224241200000
8.	11717175236000	14.	14122412100

DIVISION.

(Art. 50, p. 50.)

	Quotients.	Rem.		Quotients.	Rem.
			14.	54848	5
5.	757913	0	15.	186529	6
6.	1460898	1	16.	956131	11
7.	141090	5	17.	1135791	1
8.	47316	4	18.	162255	6
9.	994864	8	19.	202818	6
10.	698082	1	20.	225353	3
11.	528776	9	21.	187794	2
12.	79992	4	22.	170721	9
13.	55096	6	23.	78715 dollars	