

**FRENCH'S MATHEMATICAL  
SERIES. KEY TO FRENCH'S  
COMMON SCHOOL ARITHMETIC.  
FOR THE USE OF TEACHERS**

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**JOHN H. FRENCH**

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FRENCH'S MATHEMATICAL SERIES.

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• K E Y

TO

F R E N C H ' S

COMMON SCHOOL ARITHMETIC.

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FOR THE USE OF TEACHERS.

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BY

JOHN H. FRENCH, LL.D.

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1878.

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## PUBLISHERS' NOTICE.

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### FRENCH'S ARITHMETICS.

This Series consists of Five Books, viz. :

- I. FIRST LESSONS IN NUMBERS.
- II. ELEMENTARY ARITHMETIC.
- III. MENTAL ARITHMETIC.
- IV. COMMON SCHOOL ARITHMETIC.

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The Publishers present this Series of Text-Books to American Teachers, fully believing that they contain many new and valuable features that will especially commend them to the *practical* wants of the age.

The plan for the Series, and for each book embraced in it, was fully matured before any one of the Series was completed; and as it is based upon true philosophical principles, there is a real progressiveness in the books that is not found in any other Series of Arithmetics published.

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## P R E F A C E.

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**M**ANY teachers object to the publication of a Key to any mathematical work, on the ground that a person who is competent to give instruction in any branch of mathematics, is competent to do so without the aid of a Key to the text-book. While this ground is true, it does not follow that a Key may not, at times, be of value even to the most competent instructors. The manner in which such a work is used makes it valuable or prejudicial to the interests of teachers and pupils.

A teacher is many times unable to carefully review a lesson in advance of the class, for the purpose of making thorough preparation for conducting the recitation; and sometimes the attention of the teacher is necessarily divided between a class and the other pupils in the school-room; and hence, when a pupil encounters a difficulty in recitation, it not unfrequently happens that the teacher is not able at the moment to give the needed aid as promptly as it should be given. Again, when the result or "Answer" to a problem is not given in the text-book, pupils will sometimes fail to agree on the result. And again, young teachers who are using a text-book which they have not previously studied as pupils nor used as teachers, sometimes find themselves "at sea," when preparing for

or conducting a recitation. Under any of these circumstances, a Key may be judiciously used by the teacher, without injury to the school.

While, in a work of this kind, the teacher expects to find a "Key to unlock difficulties," this should not be the only purpose for which he should consult its pages. The work, if properly prepared, should aim to accomplish a higher object. It should present solutions of problems that may be taken as models of blackboard work, and logical explanations of the solutions of all difficult problems; and these solutions and explanations should form a basis on which pupils should be so instructed, that their blackboard work and mathematical statements will bear the severest criticism.

In short, a teacher should never depend upon a Key as a substitute for study and thought; but he should use it as an aid in acquiring correct methods of solution and explanation, and as a temporary help, when unavoidably prevented from making thorough preparation to conduct a recitation.

The Keys to this Series of Arithmetics correspond to the respective text-books in the order of subjects, and the numbering of chapters, sections, cases, and problems. Besides giving the results to all the problems in the text-book, and full solutions to all the more difficult problems, full solutions are given of enough problems at the beginning of each case to furnish models that may be used as standards for criticism, by both teachers and pupils.



KEY  
TO  
COMMON SCHOOL ARITHMETIC.

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CHAPTER I.  
I N T E G E R S .

SECTION II.

*NOTATION AND NUMERATION.*

*EXERCISES.*

1. Ten, thirty, seventy, twenty-three, ninety-nine, sixteen, eleven, twelve.

2. One hundred, four hundred, seven hundred, three hundred fifty, two hundred eighty, one hundred ninety.

3. Five hundred ninety-six, two hundred eighty-one, six hundred ninety-four, three hundred seventy-five, three hundred thirty-three, eight hundred ninety-nine.

4. One hundred eight, nine hundred four, three hundred one, seven hundred seven, five hundred ten, eight hundred eleven, six hundred, one hundred fifty.

5. 50, 90, 41, 66.    6. 14, 100, 400, 600.    7. 260, 590.

8. 710, 826.    9. 581, 615.    10. 204, 503.

11. 706, 801.    12. 650, 712.    13. 563, 290.

14. 119, 999.

15. Five thousand; four thousand two hundred; one thousand three hundred sixty; six thousand three hundred eighty-four; three thousand five hundred sixty-nine; eight thousand one hundred thirteen.

16. Nine thousand eleven; five thousand six hundred eight; three thousand eight; one thousand forty; four thousand seventy-six.

17. Thirty thousand; fifty-seven thousand; forty-two thousand three hundred; sixty-five thousand eight hundred fifty; eighty-three thousand two hundred ninety-four.

18. Fifteen thousand two hundred three; forty-seven thousand fifty-six; fifty thousand nine hundred twelve; ninety thousand fifty-two; eighty-nine thousand five.

19. Eighty thousand six; twenty-five thousand thirty; sixty thousand two hundred nine; forty thousand four hundred seventy-five; thirty thousand eight hundred; fifty-five thousand seven hundred sixty-three.

20. 2,000; 7,500.	21. 4,160.	22. 9,653.
23. 3,811.	24. 7,041.	25. 1,001; 2,050.
26. 5,409.	27. 16,500.	28. 81,270.
	29. 11,985.	

30. Two hundred seventy-five thousand; one hundred thousand; eight hundred sixty thousand; four hundred ninety-three thousand six hundred; eight hundred fifteen thousand three hundred fifty.

31. 200,000.	32. 650,800.
33. 109,726.	34. 105,080.

35. Four million; eighty million; seventy-three million; nine million seven hundred twenty-one thousand three hundred twelve.

36. Eighteen million two hundred seventy-one thousand one hundred; three hundred million; two hundred fifty-three million seven hundred twenty-nine thousand five hundred ninety-four; six hundred four million.

37. 9,000,000; 14,000,000.	38. 452,000,000.
39. 901,000,000.	40. 200,265,000.
	41. 509,612,985.

42. Four billion three hundred fifty-nine million six thousand one hundred ten; nineteen billion; forty billion sixty million one hundred thirty-nine thousand one hundred ninety-four.

43. Five billion two hundred thirty-six million four hundred eighty-one thousand two hundred seventy-nine; ten billion five hundred million six hundred thousand; ninety-two billion six hundred seventy-five million two hundred forty-four thousand.

44. Three quadrillion; three hundred ninety-six billion seven hundred twenty-eight million one hundred thirty-six thousand two hundred ninety-four.

45. Seventeen billion two hundred fifty-two million five thousand thirty; eighteen million thirty-nine; four hundred ten billion sixty thousand.

46. 5,200,022,008.

47. 45,115,164,089.

48. 52,000,000,000,000.

49. 109,000,000,000,000,000.

50. 9,000,306,000.

51. 478,234,008,516,700,508.

52. 619,000,080.

53. Eighty; two hundred ninety; seven hundred sixty-three; four hundred nine; seven thousand; two thousand nine; five thousand eighty.

54. Nine thousand three hundred ninety-three; six thousand five hundred; fifty thousand; eighty-three thousand four hundred; fourteen thousand eight; ten thousand eighty-six.

55. Five hundred twelve thousand six hundred ninety-four; eight hundred nine thousand one hundred twenty-three; five hundred fifty-nine thousand twenty-six; three hundred thousand six; one hundred ten thousand ninety.

56. 80; 300; 910.

57. 55; 716; 401.

58. 8,000; 50,000; 92,000.

59. 612,165.

60. 15,017.

61. 400,056.

62. 60,000,000; 700,000,000.

63. 182,355,488.

64. 209,018,910.

65. Three hundred twenty million two hundred ninety-six; two hundred million one hundred sixty-five thousand; six hundred ninety-three million one hundred thousand eighty-three; five hundred one million eighty thousand two hundred seventy-six.