Problems

The following mental addition and multiplication problems can be done almost immediately, just by listening to the numbers from left to right.

1. 23 + 5

2. 23 + 50

3. 500 + 23

4. 5000 + 23

5. 67 + 8

6. 67 + 80

7. 67 + 800

8. 67 + 8000

9. 30 + 6

10. 300 + 24

11. 2000 + 25

12. 40 + 9

13. 700 + 84

14. 140 + 4

15. 2500 + 20

16. 2300 + 58

17. 13×10

18. 13×100

19. 13×1000

20. 243×10

21. 243×100

22. 243×1000

23. 243×1 million

24. Fill out the standard 10-by-10 multiplication table as quickly as you can. It's probably easiest to fill it out one row at a time by counting.

25. Create an 8-by-9 multiplication table in which the rows represent the numbers from 2 to 9 and the columns represent the numbers from 11 to 19. For an extra challenge, fill out the squares in random order.

26. Create the multiplication table in which the rows and columns represent the numbers from 11 to 19. For an extra challenge, fill out the rows in random order. Be sure to use the shortcuts we learned in this lecture, including those for multiplying by 11.

The following multiplication problems can be done just by listening to the answer from left to right.

27. 41×2

28. 62×3

29. 72×4

30. 52×8

31. 207×3

32. 402×9

33. 543×2

Do the following multiplication problems using the shortcuts from this lecture.

34. 21×11

35. 17×11

36. 54×11

37. 35×11

38. 66×11

39. 79×11

40. 37×11

41. 29×11

42. 48×11

43. 93×11

44. 98×11

45. 135×11

46. 261×11

47. 863×11

48. 789×11

49. Quickly write down the squares of all 2-digit numbers that end in 5.

50. Since you can quickly multiply numbers between 10 and 20, write down the squares of the numbers 105, 115, 125, … 195, 205.

51. Square 995.

52. Compute 1005^2.

Exploit the shortcut for multiplying 2-digit numbers that begin with the same digit and whose last digits sum to 10 to do the following problems.

53. 21×29

54. 22×28

55. 23×27

56. 24×26

57. 25×25

58. 61×69

59. 62×68

60. 63×67

61. 64×66

62. 65×65

Solutions for this lecture begin on page 82.