

Summary of the 60 Number-Power Tricks for Handy Reference

TRICK 1: When multiplying or dividing, initially disregard any affixed zeroes. Then reaffix, if necessary, upon completing calculation.

TRICK 2: When multiplying or dividing, initially disregard any decimal points. Then reinsert, if necessary, upon completing calculation.

TRICK 3: To multiply a number by 4, double the number, and then double once again.

TRICK 4: To divide a number by 4, halve the number, and then halve once again.

TRICK 5: To multiply a number by 5, divide the number by 2.

TRICK 6: To divide a number by 5, multiply the number by 2.

TRICK 7: To square a number that ends in 5, multiply the tens digit by the next whole number, and then affix the number 25.

TRICK 8: To multiply a two-digit number by 11, add the digits of the number, and insert the sum within the number itself. Carry if necessary.

TRICK 9: To multiply a number by 25, divide the number by 4.

TRICK 10: To divide a number by 25, multiply the number by 4.

TRICK 11: To multiply a one- or two-digit number by 99, subtract 1 from the number, and affix the difference between 100 and the number.

TRICK 12: To multiply a one- or two-digit number by 101, write the number twice; if a one-digit number, insert a zero in the middle.

TRICK 13: To multiply two numbers whose difference is 2, square the number in the middle and subtract 1.

TRICK 14: To check multiplication, multiply digit sums of factors and compare with digit sum of product. To check division, treat as multiplication, and check in same manner.

TRICK 15: To multiply a number by 125, divide the number by 8.

TRICK 16: To divide a number by 125, multiply the number by 8.

TRICK 17: To multiply a number by 9, multiply the number by 10 and then subtract the number.

TRICK 18: To multiply a number by 12, multiply the number by 10 and add twice the number itself.

TRICK 19: To multiply a number by 15, multiply the number by 10 and add half of the product.

TRICK 20: To multiply two 2-digit numbers whose tens digits are the same and whose ones digits add up to ten, multiply the tens digit by the next whole number, and affix the product of the ones digits.

TRICK 21: To multiply a number by 1.5, 2.5, or the like, first halve the number and double the 1.5 (or 2.5, or the like.) Then multiply.

TRICK 22: To divide a number by 1.5, 2.5, or the like, first double both the number and the 1.5 (or 2.5, or the like.) Then divide.

TRICK 23: To square a two-digit number beginning in 5, add 25 to the ones digit and affix the square of the ones digit.

TRICK 24: To square a two-digit number ending in 1, compute as in the following example: $31^2 = 30^2 + 30 + 31 = 961$

TRICK 25: To multiply two 2-digit numbers without showing work, first multiply the ones digits together, then "cross-multiply," and finally multiply the tens digits together. Carry if necessary.

TRICK 26: To multiply two numbers whose difference is 4, square the number exactly in the middle and subtract 4.

TRICK 27: When a calculation seems slightly beyond your reach, divide one number into two smaller ones. For example, view 8×14 as $8 \times 7 \times 2$.

TRICK 28: To multiply two numbers that are just over 100, begin the answer with a 1. Then affix first the sum, and then the product, of the ones digits.

TRICK 29: To subtract rapidly, view subtraction as addition, and work from left to right.

TRICK 30: To subtract when numbers are on opposite sides of 100, 200, or the like, determine the two "distances" and add.

TRICK 31: To make subtraction easier, alter the minuend and subtrahend in the same direction to make the subtrahend a multiple of 10, 100, or the like.

TRICK 32: To make addition easier, round up an addend, add the addends, and then subtract the number that was added when rounding.

TRICK 33: Group numbers to be added in combinations of 10, add numbers slightly out of order, and "see" two or three numbers as their sum.

TRICK 34: When adding columns of numbers, enter the column totals without carrying, moving one column to the left each time.

TRICK 35: To mentally add a column of numbers, add one number at a time—first the tens digit, then the ones digit.

TRICK 36: To mentally add a column of numbers, first add all the tens digits, then add all the ones digits.

TRICK 37: When adding long columns of numbers, lightly cross out a digit every time you exceed 9, and proceed with just the ones digit.

TRICK 38: When adding long columns of numbers, divide the column into smaller, more manageable sections.

TRICK 39: When adding just a few numbers, it is fastest to begin with the largest number and to end with the smallest.

TRICK 40: To add $1 + 2 + 3 + \dots + n$, multiply n by $(n + 1)$, and then divide by 2.

TRICK 41: If you prefer not to "subtract by adding," then you can subtract in two steps—first the tens digits, then the ones.

TRICK 42: To check addition, add digit sums of addends, and compare with digit sum of the answer. To check subtraction, treat as addition and check in the same manner.

TRICK 43: To multiply a number by 75, multiply the number by $\frac{3}{4}$.

TRICK 44: To divide a number by 75, multiply the number by $1\frac{1}{3}$.

TRICK 45: To divide a number by 8, multiply the number by $1\frac{1}{4}$.

TRICK 46: To divide a number by 15, multiply the number by $\frac{2}{3}$.

TRICK 47: To estimate multiplication by 33 or 34, divide by 3.

TRICK 48: To estimate division by 33 or 34, multiply by 3.

TRICK 49: To estimate multiplication by 49 or 51, divide by 2.

TRICK 50: To estimate division by 49 or 51, multiply by 2.

TRICK 51: To estimate multiplication by 66 or 67, multiply by $\frac{2}{3}$.

TRICK 52: To estimate division by 66 or 67, multiply by 1.5.

TRICK 53: To estimate division by 9, multiply by 11.

TRICK 54: To estimate division by 11, multiply by 9.

TRICK 55: To estimate division by 14, multiply by 7.

TRICK 56: To estimate division by 17, multiply by 6.

TRICK 57: When a multiplication seems slightly beyond your grasp, regroup, as in the following example: $43 \times 6 = (40 \times 6) + (3 \times 6) = 258$.

TRICK 58: When a multiplicand or multiplier is just shy of a multiple of 10 or 100, round up and subtract, as in the following example: $15 \times 29 = (15 \times 30) - (15 \times 1) = 435$.

TRICK 59: To multiply a three-digit or larger number by 11, first carry down the ones digit of the number. Then add the ones and tens digits, the tens and hundreds digit, and so forth. Carry when necessary.

TRICK 60: Dividing by all nines produces a repeating pattern. For example, $2 \div 9 = 0.222\dots$, $37 \div 99 = 0.3737\dots$, and $486 \div 999 = 0.486486\dots$