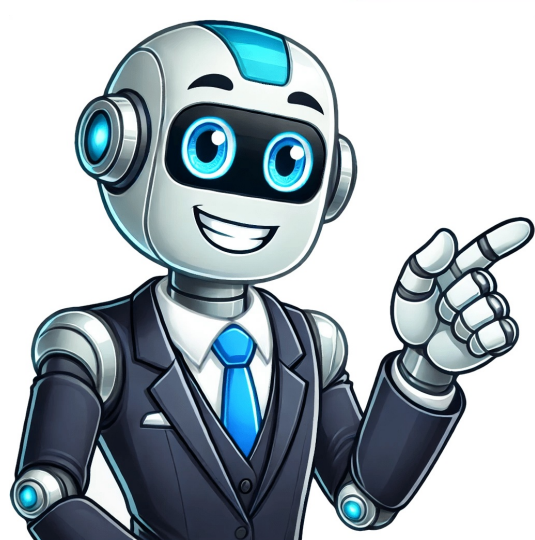


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Long multiplication extends tables work so that numbers bigger than 10 can be multiplied without using a calculator. There are a number of ways to do this. The traditional method is demonstrated in the example below. This method is very versatile and can handle decimals as well as whole numbers. In the box on the right you can enter your own multiplications. Watch as the solution unfolds step by step. 1 Write the larger number above the smaller number. Let's say you're going to multiply 756 and 32. Write 756 above 32, making sure that the ones and tens columns of both numbers line up, so that the 6 from 756 is above the 2 in 32 and the 5 in 756 is above the 3 in 32, and so on. This will make it easier for you to visualize the long multiplication process.[1] You will essentially begin by multiplying the 2 in 32 by each of the numbers in 756, and then multiplying the 3 in 32 by each of the numbers in 756. But let's not get ahead of ourselves. The "bigger" number means the one with the most digits (numbers). 2 Multiply the number in the ones place of the bottom number by the number in the ones place of the top number. Take the 2 from 32 and multiply it by the 6 in 756. The product of 6 times 2 is 12. Write the ones digit, 2, under the units, and carry the 1 over the 5. Basically, you write down whatever number is in the ones digit, and if there is a number in the tens digit, you will have to carry it over the number to the left of the top number you just multiplied. You'll have a 2 directly below the 6 and the 2.[2] Advertisement 3 Multiply the number in the ones place of the bottom number by the number in the tens place of the top number. Now, multiply 2 times 5 to equal 10. Add the 1 you carried over above the 5 to 10 to equal 11, and then write a 1 next to the 2 in the bottom row. You'll have to carry the extra 1 in the tens place over the 7.[3] 4 Multiply the number in the ones place of the bottom number by the number in the hundreds place of the top number. Now, just multiply 2 by 7 to equal 14. Then add the 1 that you carried over to 14 to equal 15. Don't carry the tens over this time, as there are no more numbers to multiply on this row. Just write the 15 on the bottom line.[4] 5 Draw a 0 in the ones column below the first product. Now, you'll be multiplying the number in the tens place of 32, 3, by each digit in 756, so draw a zero below the 2 in 1512 before you begin so you are already starting in the tens place. If you were going to keep going and multiply a number in the hundreds place by the top number, then you'd need to draw two zeroes, and so on.[5] 6 Multiply the number in the tens place of the bottom number by the number in the ones place of the top number. Now, multiply 3 by 6 to equal 18. Again, put the 8 on the line, and carry the 1 over above the 5. 7 Multiply the number in the tens place of the bottom number by the number in tens place of the top number. Multiply 3 times 5. This makes 15, but you must add on the carried 1, so it equals 16. Write the 6 on the line, and carry the 1 over above the 7. 8 Multiply the number in the tens place of the bottom number by the number in hundreds place of the top number. Multiply 3 times 7 to equal 21. Add the 1 you carried to equal 22. You don't need to carry the 2 in 22, as there are no more numbers to multiply on this line, so you can just write it down next to the 6. 9 Add the ones digits of both products. Now, you'll have to simply add up 1512 and 22680. First, add 2 plus 0 to equal 2. Write the result in the ones column. 10 Add the tens digits of both products. Now, add up 1 and 8 to equal 9. Write 9 to the left of the 2. 11 Add the hundreds digits of both products. The sum of 5 and 6 is 11. Write down the 1 in the tens place over 1 at the very left of the first product. 12 Add the thousands digits of both numbers. Add up 1 plus 2 to equal 3 and then add on the 1 you carried over to equal 4. Write it down. 13 Add the ten thousands digits of both numbers. The first number has nothing in the ten thousands place, and the second has 2 there. So, add 0 plus 2 to equal 2 and write it down. This gives you 24,192, your final answer. 14 Check your answer with a calculator. If you want to double check your work, type in the problem into a calculator to see if you've done it correctly. You should get 756 times 32 equals 24,192. You're all done! Advertisement Here are some tips and tricks to help you with multiplication. Everyone thinks differently, so just ignore any tricks that don't make sense to you. First of all: Memory is your best friend! With the multiplication table in your memory you simply know that 3x5=15, 6x8=48 etc. Memory is fast, too. Math Trainer - Multiplication is designed to help you remember your tables. The Best Trick Every multiplication has a twin, which may be easier to remember. For example if you forget 8x2, you might remember 2x8=16. This way, you only have to remember half the table. Tricks by Number 2 Add the number to itself (in other words, double it) Example 2x9 = 9+9 = 18 4 double, then double again Example 4x9: double 9 is 18, double 18 is 36 5 Cut in half, then times 10 Example: 5x6: Cut 6 in half to get 3, then times 10 for 30 Or times 10 then cut in half Example: 5x9: 9 times 10 is 90, then cut in half for 45 Also the last digit goes 5, 0, 5, 0, ... like this: 5, 10, 15, 20, ... 6 when you multiply 6 by an even number, they both end in the same digit. Examples: 6x2=12, 6x4=24, 6x6=36, etc 7x8 Think "5,6,7,8": 56=7x8 8 Double, double, double! Example: 8x6: double 6 is 12, double 12 is 24, double 24 is 48 9 is 10x the number minus the number. Example: 9x6 = 10x6-6 = 60-6 = 54 the ones digit goes 9, 8, 7, 6, ..., 9, 18, 27, 36, 45, ..., subtract one to get the tens digit, and the tens and ones digit together make 9 Example: 9x5: tens digit is 4, 4 and 5 make 9, so 45 Example: 9x8: tens digit is 7, 7 and 2 make 9, so 72 your hands can help! Example: to multiply 9 by 8, hold your 8th finger down, and count "7" and "2", the answer is 72 10 put a zero after it Example: 10x2 = 20 11 up to 11x9: just repeat the digit. Example: 11x4 = 44 for 11x10 to 11x18: write the sum of the digits between the digits Example: 11x15 = (1+1)+5= 165 Note: this works for any two-digit number, but when the sum of the digits is more than 9, we need to "carry the one". Example: 11x75 = 7(7+5)5 = 7(12)5 = 825. 12 is 10x plus 2x Example: 12x4 = 40+8 = 48 15 multiply by 10, then add half again Example: 15x4 = 40+20 = 60 Example: 15x9 = 90+45 = 135 20 multiply by 10, then double Example: 20x4 = 40+40 = 80 Example: 20x7 = 70+70 = 140 Remembering Squares Can Help This may not work for you, but it worked for me. I like remembering the squares (where you multiply a number by itself): 1x1 =1 2x2 =4 3x3 =9 4x4 =16 5x5 =25 6x6 =36 7x7 =49 8x8 =64 9x9 =81 10x10 =100 11x11 =121 12x12 =144 Tricky Trick And this gives us one more trick. When the numbers we are multiplying are separated by 2 (example 7 and 5), then multiply the number in the middle by itself and subtract one. See this: 5x5 = 25 is just one bigger than 6x4 = 24 6x6 = 36 is just one bigger than 7x5 = 35 7x7 = 49 is just one bigger than 8x6 = 48 8x8 = 64 is just one bigger than 9x7 = 63 etc ... Copyright © 2025 Rod Pierce You probably had to memorize the "times table" up to 10 in school. A multiplication table has each entry equal to the product of its row and column numbers. What is the sum of all the numbers inside the times table? (Only count the entries in the grey box. That is, you only want to sum the products.)Imagine you had a times table for the numbers 1 to N. What is the sum of the entries in that times table?Can you figure it out in 30 seconds?Give it a try and watch the video for two solution methods.What is the sum of the numbers in a multiplication table? Or keep reading for a text/image summary. . . .All will be well if you use your mind for your decisions, and mind only your decisions." Since 2007, I have devoted my life to sharing the joy of game theory and mathematics. MindYourDecisions now has over 1,000 free articles with no ads thanks to community support! Help out and get early access to posts with a pledge on Patreon. . . . M I N D Y O U R D E C I S I O N S P U Z Z L E . . . Answer To: Sum Of A Multiplication Table Topics: Multiplication, summation, patterns and structure Materials: Multiplication table, pencil and paper Grade: 4, 5, 6 Common Core: 4.OA.1, 4.OA.3, 4.OA.5, 4.NBT.5, 5.OA.2, 5.OA.3, 6.RP.1, 6.EE.1, MP1, MP2, MP3, MP6, MP7, MP8. This is a great puzzle for kids who have some comfort with multiplication but still need to deepen their understanding. It gets them looking at the multiplication table with purpose, and they'll find some serious structure there. 1 Write the larger number above the smaller number. Let's say you're going to multiply 756 and 32. Write 756 above 32, making sure that the ones and tens columns of both numbers line up, so that the 6 from 756 is above the 2 in 32 and the 5 in 756 is above the 3 in 32, and so on. 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Advertisement Learning to multiply a 2 digit number by another 2 digit number can appear to be quite daunting. But once you understand the technique, you can easily multiply 2 or 3 digit numbers, using the column method, easily and quickly. There are many ways you can multiply larger numbers together e.g grid method, expanded column method, column method etc. Watch this video showing How to do a long multiplication sum using the column method. Some children will find one method easier to understand and use. Children can be shown the different methods of multiplying numbers, this may help when they are first learning the principles behind long multiplication sums. Once they are more confident, they can then move onto the quick, efficient way of long multiplication sums. This will help them in tests and exams, where the time taken to work out a sum matters. Schools may teach how to solve long multiplication sums in a variety of ways. Join Teach My Kids to gain access to a whole year's worth of Maths and English worksheets. Long Multiplication Sums Explained Step by Step (Column Method) Below is an example of how to work out a long multiplication sum using the quick, efficient column method. Multiplication Sum: 43 x 12 = Write the numbers into columns. Remember to put the tens and units for each number underneath each other. 4 3 x 1 2 First multiply 43 x 2 4 3 x 1 2 (2 x 3 = 6) then (2 x 4 = 8) Write the answers to these sums underneath, as you would in an addition sum. 8 6 There are no numbers to carry over, if there are numbers to carry over, this can be done in the same way you would with an addition sum. Next multiply 43 x 10 Although we are going to multiply 43 x 10, we will first place a 0 underneath the 6. We do this because we know that whenever a number is multiplied by 10 the answer ends in a 0.We can then continue with the sum. 4 3 x 1 2 8 6 4 3 0 (1 x 3 = 3) then (1 x 4 = 4) Write the answers to these sums underneath, as you would in an addition sum. In this example, there are no numbers to carry over. If there are numbers to carry over, this can be done in the same way you would with an addition sum. Finally add 86 + 430. We start by adding the numbers in the units column first (6+0 = 6)Add the tens (8+3=11). Notice the number 11, is made up of 1 ten and 1 unit, therefore we need to carry the 1 ten over to the hundreds column and write it into our sum.Add the hundreds (1+4=5). 4 3 x 1 2 8 6 + 4 3 0 5 1 6 The answer to 43 x 12 = 516 For more step by step examples on how to work out long multiplication sums using the column method visit Teach My Kids Learning Channel. If you have found our Learn Multiplication video helpful, remember to 'Like' and hit the 'Subscribe' button on Teach My Kids Learning Channel. Join Teach My Kids to gain access to a whole year's worth of Maths and English worksheets. Female hairdresser, blonde hair, grey dress: 1 use multiplication quite a bit.I do the wages and we work on a four weekly pay system so I have to multiply everything by four.Female, blue crochet hat, grey coat: I have six grandchildren under the age of 10 so I give them £5 every month of my pension. So that's five sixes are 30.Male chef, blond hair, white tunic: Today we are making the pavlova.The portion yield for one times the recipe is 40 so I'm going to do three times the recipe and make 120.Male chef, blond hair, white tunic: Working in a hotel we use multiplication all the time.Valentina has 20 rooms to clean today, she needs two sets of towels per room.20 times two, she needs 40 towels for today. 1 Write the larger number above the smaller number. 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