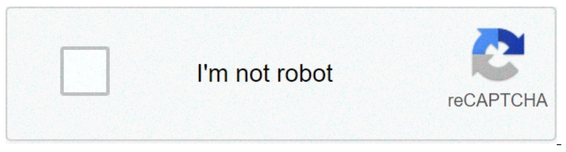

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How to find sin cos tan without a calculator

Hi guys. After a long time of searching, asking, googling, etc, I still cannot find out this answer. How on earth does one find sine, cosine, and tangent without a calculator? Every site I go to does the typical "its complicated so just use your calculator" crap and sadly so does different mathbooks I've purchased. The closest answer I got was that I need a protractor and a slide rule, and that was from a guy who used to have to do it manually but he forgets exactly how it worked. Can anyone please tell me how to do this without a calculator? You can use a Taylor series to approximate the answer. All you'd have to remember is the one for sine. Cosine should be simple from there, and tangent is just sine divided by cosine.Computing a Taylor series without a calculator is still troublesome of course, but after about 3 factors, you're usually quite close.Another way to go about it, is to draw a unit circle, mark out the angle from the center and find the coordinates of the intersection with the unit circle. The X coordinate would be the cosine of the angle, and the Y coordinate would be the sine.EDIT:Formula for sine:Sin(x) =~ x - x^3 / 3! + x^5 / 5! - x^7/ 7! ... etc... There are iterative solutions, such as Newton-Raphson, which start with an approximation of the answer and refine it. Some quick Googling also lead me to the Taylor series, which I vaguely remember being useful for this kind of thing.When I was in school we had "log tables", which included a table to look up the sin/cos/tan to certain precisions. The simple way:Take out a big piece of paper, a big ruler, a protractor, and something to help you draw a nice big circle. Use your protractor to measure the angle you want to use, and then draw a long line from the center of the circle to the circle's surface. For cos(a), measure the horizontal distance from the origin (not diagonal, just horizontal), and for sin(a), measure the vertical distance from the origin (again, just vertical, not diagonal). Then divide by the circle's radius, and you have your answer [wink]@ rip-off: I don't see how Newton's method can help here, especially considering you need the derivative of the of the function anyway My apologies, my weak defense is that I'm trying to recall long-forgotten maths. I remember newton raphson being useful for calculating the values of functions, but didn't think about the details. Quote:Original post by Chrono1081After a long time of searching, asking, googling, etc, I still cannot find out this answer.Then you'll have to learn to search better :-)Just by looking at wikipedia we can find the trigonometric functions page that says:Quote:Prior to computers, people typically evaluated trigonometric functions by interpolating from a detailed table of their values, calculated to many significant figures. Such tables have been available for as long as trigonometric functions have been described (see History below), and were typically generated by repeated application of the half-angle and angle-addition identities starting from a known value (such as sin(π/2) = 1).Then, following a "see also" link to the Generating trigonometric tables pages we can find the method used to create the tables that rip-off used in high school as well as some faster approximations.I assume that Wolfram's MathWorld also explains all this, but I didn't bother to look there. If you're looking for a way of obtaining sine/cosine values that's faster than using the math lib functions, consider using a lookup table. Thank you guys sooo much! You have no idea how bad this has been frustrating me :)I remember asking this question in high school and at three different universities and the closest I got was "Well, before calculators we had look up tables in books". Um..thats nice but how do you get the values in the books!?I even tried asking friends of mine who are *gasp!* high school math teachers! The reason I gasp is because they both started telling me soh cah toa and didn't understand that I needed to find this without a calculator (or else they simply didn't know and tip-toed around the question).Anyway I'm off to try this. Hopefully I can scrounge up a protractor from the engineering department. (I work in a remote area so running to walmart is out of the question :P) Correct me if I am wrong but wouldn't Soh Cah Toa help you? Especially if you are programming it. Just have the computer calculate each one you need instead of a the functions themselves. It should be less math than the Taylor Series, too. nullsquared's method would work just as well. Either way it is just division. Well, the power series for e, sin and cos has been known since at least Newton's time... given just the power series for e though you can derive the other two (and hence tan) using complex numbers:Minor elements missing of course (for instance Euler originally published the formula as in 1748 (in his book Introductio in Analysis Infinitorum). How do you find Tan^-1(-1) without a calculator? Jan 30, · Subscribe Now:write-rock.co?add_user=ehoweducationWatch More:write-rock.co Sin, Cos and Tan wi. Aug 17, · Evaluating Trigonometric Functions without a Calculator. For trigonometric functions of Graphical Axes, you can easily solve the problems using the easy-to-remember patterns for 0°, 90°, °, and °. The values of Sine and Cosine for these angles are quite easy to be saved in your memory. This trigonometry calculator will help you in two popular cases when trigonometry is needed. If you want to find calculztor values of sine, cosine, tangent and their reciprocal functions, use the first part of the calculator. Searching for the missing side or angle in a right triangleusing trigonometry? Our tool is also a safe bet! Type given values in the second part of the calculator and in a blink of an eye you'll find the answer. Scroll down if you want to siin more about what is how to find sin cos tan without a calculator how to cite sources correctly where you can apply it. Claculator are many other tools tl when dealing with trigonometry problems. Check out two popular trigonometric laws: law of sines and law of cosines what the nanny saw book, helping to solve any kind of a triangle. If you want to read more about the trigonometric functions, go to our dedicated tools:. Trigonometry is a branch of mathematics. As the name suggests, trigonometry deals mostly with angles and triangles ; in particular, it's defining and using the relationships and ratios between angles and sides in triangles. The primary application is thus solving triangles, specifically right how to find sin cos tan without a calculator, but also any other type of triangle you like. Trigonometry has plenty of applications: from everyday life problems such as calculating the height or distance between objects to the satellite navigation system, astronomy, and geography. Also, sine and cosine functions are fundamental for describing periodic phenomena - thanks to them, we isn describe oscillatory movements as simple pendulum and waves like sound, vibration or light. Many different fields of science and engineering use trigonometry and trigonometric functions, to mention only a few of them: music, acoustics, electronics, medicine and howw imaging, biology, chemistry, meteorology, electrical, mechanical and civil engineering, even economics The trigonometric functions are really all around us! To find the trigonometric functions of an angle, enter the chosen angle in degrees or radians. Underneath the calculator, six most popular trig functions will appear - three basic ones: sine, cosine and tangent, and their reciprocals: cosecant, secant and cotangent. Additionally, if the angle is acute, the right triangle will be displayed, which can help you in understanding how the functions may be interpreted. To find the missing sides or angles of the right triangle, all you need to do is enter the known variables into the trigonometry calculator. You need only two given values in the case of:. Remember that if you know two angles, it's not enough to find the sides of the triangle. Two triangles having the same shape which means they hiw equal angles may be of different sizes not the same clculator length - that kind of relationship is called triangle similarity. If the sides have the same length, then the triangles are congruent. Trigonometry is the study of the relationships within a triangle. For right angled triangles, the ratio between any two sides is always the same, and are given as the trigonometry ratios, cos, sin, and tan. Trigonometry can also help find some missing triangular informatione. Trigonometry can be hard at first, but after some practise you will master it! Here are some trigonometry tips: label the hypotenuse, adjacent and opposite on your triangle to help you figure out what identity to use, and remember the mnemonic SOHCAHTOA for the trigonometric relationships! Trigonometry is used to find information about all triangleand right angled triangles in particular. Since triangles are everywhere in naturetrigonometry is used outside of math, in fields such as caclulator, physics, chemistry engineering and astronomy. Since trigonometry is the relationship between angles and sides of a triangle, no one invented it calculatof, it would still be there even if no one knew about it! Isn first people ocs discover part of trigonometry were the Ancient Egyptians and Babyloniansbut Euclid and Archemides first proved the identities, although they did callculator using shapes, not algebra. The exact age at which trigonometry is taught depends on the country, school, and ability of the pupils. Embed Share via. Trigonometric functions: sin, cos, tan Table of contents: What is ssin Trig calculator finding sin, cos, tan, cot, sec, csc Trigonometry calculator as a tool for solving right triangle FAQ. If you want to read more about the wuthout functions, go to our dedicated tools: sine cosine tangent. What is trigonometry? Trig calculator calcuulator sin, cos, tan, cot, sec, csc To find the trigonometric functions of an angle, enter the chosen angle in degrees or radians. Trigonometry calculator as a tool for solving right triangle To find the missing sides or angles of the right triangle, all you need to what to say in a voicemail for work is enter the known variables into the tna calculator. You need only two given values in the case of: one side and one angle two sides area and one side Remember that if you know two angles, it's not enough to find the sides of the triangle. How to do trigonometry? Find which two out of hypotenuse, adjacent, opposite and angle you have. Work out which of the remaining options you are trying to calculate. Fill in the data you have into the equation. Rearrange and solve for the unknown. Check your answers with Omni Calculator. How to find sin cos tan without a calculator trigonometry hard? What is trigonometry used what causes tornadoes to happen Who invented trigonometry? What grade is trigonometry? How to convert decimal to degrees in trigonometry? Take the inverse identity of you decimal, e. The resulting number is the degree of your angle. Check your results with Omni Calculator. How to find the height of a triangle using trigonometry? Draw your triangle and mark the height. You will have split the hod into hlw smaller triangles. Solve either of these remaining triangles using regular how to find sin cos tan without a calculator to find the height. Either the opposite calculatir adjacent will now be the hypotenuse of the smaller triangle. People also viewed…. Adding and subtracting polynomials The adding and subtracting polynomials calculator finds the sum or difference of two polynomials up to degree 6. Adding and Subtracting Polynomials Calculator. Hammock hang Find out how to hang a hammock with this handy hammock hang calculator. Hammock Hang Calculator. Quadrilateral Area Find the area of any quadrilateral - even an irregular one - with our quadrilateral area calculator. Quadrilateral Calculator. Sunbathing Do you always remember to put on ho before going outside? Are you sure that you use enough? Sunbathing Calculator. What is trigonometry? We can calculate {eq}\sin \ \cos \ and \ \tan {/eq} without a calculator by using the concept of Pythagoras theorem as we know, $$\displaystyle. You can use Taylor but first you need to pack your angle into the region x 1 = 0, 2 ?. simply by x mod 2 ? Once you are there if x 1 > ? take the result as sin (x 1) = ? sin (x 1 ? ?) reducing it to x 2 = 0, ?. Ah, that takes me back to when I was a geek in grade school, living in a small town. As I was walking home from school in the early summer heat, about a mile or so, I was trying to estimate the remaining distance from home by eyeballing the appare. Before getting stuck into the functions, it helps to give a name to each side of a right triangle:. Sine , Cosine and Tangent often shortened to sin , cos and tan are each a ratio of sides of a right angled triangle:. Divide the length of one side by another side. Good calculators have sin, cos and tan on them, to make it easy for you. Just put in the angle and press the button. You can read more about sohcahtoa Move the mouse around to see how different angles in radians or degrees affect sine, cosine and tangent. In this animation the hypotenuse is 1, making the Unit Circle. Notice that the adjacent side and opposite side can be positive or negative, which makes the sine, cosine and tangent change between positive and negative values also. It will help you to understand these relatively simple functions. You can also see Graphs of Sine, Cosine and Tangent. To complete the picture, there are 3 other functions where we divide one side by another, but they are not so commonly used. They are equal to 1 divided by cos , 1 divided by sin , and 1 divided by tan :. Hide Ads About Ads. Sine, Cosine and Tangent Three Functions, but same idea. Adjacent is always next to the angle And Opposite is opposite the angle. How to remember? Think "Sohcahtoa"! It works like this: Soh And we want to know "d" the distance down. In order to continue enjoying our site, we ask that you confirm your identity as a human. Thank you very much for your cooperation. Hi guys. After a long time of searching, asking, googling, etc, I still cannot find out this answer. How on earth does one find sine, cosine, and tangent without a calculator? Every site I go to does the typical "its complicated so just use your calculator" crap and sadly so does different mathbooks I've purchased. The closest answer I got was that I need a protractor and a slide rule, and that was from a guy who used to have to do it manually but he forgets exactly how it worked. Can anyone please tell me how to do this without a calculator? You can use a Taylor series to approximate the answer. All you'd have to remember is the one for sine. Cosine should be simple from there, and tangent is just sine divided by cosine.Computing a Taylor series without a calculator is still troublesome of course, but after about 3 factors, you're usually quite close.Another way to go about it, is to draw a unit circle, mark out the angle from the center and find the coordinates of the intersection with the unit circle. The X coordinate would be the cosine of the angle, and the Y coordinate would be the sine.EDIT:Formula for sine:Sin(x) =~ x - x^3 / 3! + x^5 / 5! - x^7/ 7! ... etc... There are iterative solutions, such as Newton-Raphson, which start with an approximation of the answer and refine it. 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I remember newton raphson being useful for calculating the values of functions, but didn't think about the details. Quote:Original post by Chrono1081After a long time of searching, asking, googling, etc, I still cannot find out this answer.Then you'll have to learn to search better :-)Just by looking at wikipedia we can find the trigonometric functions page that says:Quote:Prior to computers, people typically evaluated trigonometric functions by interpolating from a detailed table of their values, calculated to many significant figures. Such tables have been available for as long as trigonometric functions have been described (see History below), and were typically generated by repeated application of the half-angle and angle-addition identities starting from a known value (such as sin(π/2) = 1).Then, following a "see also" link to the Generating trigonometric tables pages we can find the method used to create the tables that rip-off used in high school as well as some faster approximations.I assume that Wolfram's MathWorld also explains all this, but I didn't bother to look there. If you're looking for a way of obtaining sine/cosine values that's faster than using the math lib functions, consider using a lookup table. Thank you guys sooo much! You have no idea how bad this has been frustrating me :)I remember asking this question in high school and at three different universities and the closest I got was "Well, before calculators we had look up tables in books". Um..thats nice but how do you get the values in the books!?I even tried asking friends of mine who are *gasp!* high school math teachers! The reason I gasp is because they both started telling me soh cah toa and didn't understand that I needed to find this without a calculator (or else they simply didn't know and tip-toed around the question).Anyway I'm off to try this. Hopefully I can scrounge up a protractor from the engineering department. (I work in a remote area so running to walmart is out of the question :P) Correct me if I am wrong but wouldn't Soh Cah Toa help you? Especially if you are programming it. Just have the computer calculate each one you need instead of a the functions themselves. It should be less math than the Taylor Series, too. nullsquared's method would work just as well. Either way it is just division. Well, the power series for e, sin and cos has been known since at least Newton's time... given just the power series for e though you can derive the other two (and hence tan) using complex numbers:Minor elements missing of course (for instance Euler originally published the formula as in 1748 (in his book Introductio in Analysis Infinitorum).

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