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Finding zeros of a function practice problems

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If your device is not in landscape mode many of the equations will be run off the side of your device (should be able to scroll to see them) and some of the menu items will be cut off due to the narrow screen width. Find all zeros of the following polynomial. Show Mobile Message Show All Notes Hide All Notes Mobile message You appear to be on a device with a narrow screen width (i.e. you're probably on a mobile phone). Because of the nature of the math on this site is the best views in landscape mode. If your device is not in landscape mode many of the equations will be run off the side of your device (should be able to scroll to see them) and some of the menu items will be cut off due to the narrow screen width. For problems 1 – 3 list all of the zeros in the polynome and give their multiplicities. $\left(x \right) = 2{x^2} + 13x - 7\)$ Solution $\g\left(x \right) = {x^6} - 3{x^5} - 6{x^4} + 10{x^3} + 21{x^2} + 9x =x\left({x - 3} \right)^2}\left({x {+ 1} \right)^3}\)$ Solution $\begin{align *}A\left(x \right) &= {x^8} + 2{x^7} - 29{x^6} - 76{x^5} + 199{x^4} + 722{x^23} + 261{x^2} - 648x - 432\\ &= {\left({x + 1} \right)^2}{\left({x - 4} \right)^2}\left({ x - 1} \right){\left({x + 3} \right)^3}\end{align*}\)$ Solution For problem 4 - 6 $\(x = r)$ is a root of the given polynome. Find the other two roots and write the polynome in fully weighted form. $\(P\left(x \right) = {x^3} - 6{x^2} - 16x\) ; \(r = - 2)$ Solution $\(P\left(x \right) = {x^3} - 7{x^2} - 6x + 72\) ; \(r = 4\)$ Solution $\(P\left(x \right) = 3{x^3} + 16{x^2} - 33x + 14\) ; \(r = - 7\)$ Solution How to find the zeros for functions; tutorials with examples and detailed solutions. The zeros of a function f are found by solving the equation f(x) = 0.Example 1Find the zero for the linear function f given byf(x) = -2 x + 4Solution for Example 1To find the zeros for functioni f, solve the equationThe zero of f is trousers = 2Example 2Finethe zeros for the square function f given byf(x) = -2 x 2 - 5 x + 7Solution for Example 2Solve f(x) = 0f(x) = -2 x 2 - 5 x + 7 = 0Factor the expression - 2 x 2 - 6 x + 8and loose for xx = -7 / 2 and x = 1Graph of function f shown below. The zeros of a function are the x-coordinates of the x-cuts of the graph of f.Example 3Finethe zeros for the sine function f given byf(x) = sin(x) - 1 / 2Solution for Example 3Solve f(x) = 0Re write as follows The above equation is a trigonometric equation and has an infinite number of solutions given trousers = π / 6 + 2 k π and x = 5 π / 6 + 2 k π where k is any integer takes the values 0 , 1, -1, 2, -2 ... The graph of f is shown below. The number of zeros of function f is defined by f(x) = sin(x) - 1 / 2 is infinite simply because function f is periodic. Example 4Find the zeros for logarithmic function f given byf(x) = ln (x - 3) - 2Slösere for Example 4Solve f(x) = 0Rewrite according to the followingRebook the above equation change it from log garit to exponential formx - 3 = e 2and solve to find a zerox = 3 + e 2Example 5Are the zeros for the exponential function f given byf(x) = ex2 - 2 - 23 For example, release 5Solve f(x) = 0ex2 - 2 - 3 = 0Rewrite the above equation as followsex2 - 2 = 3Rewrite above equation change it from exponential to logarithmic formx2 - 2 = ln (3)Solve the above equation to find two zeros of fx1 = square root [ln (3) + 2]andx2 = - square root [ln (3) + 2]More References and linksApplications, Graphs, Domain and scope of featuresreport this ad if you see this message, it means that we are having trouble loading external resources on our site. If you're behind a web filter, please make sure that the *.kastatic.org and *.kasandbox.org domains are unblocked. Related Topics: More lessons for PreCalculus Math Worksheet Videos, Spreadsheets, Examples, Solutions, and Activities to help PreCalculus students learn how to find zeros or roots in a polynomial function. The following illustration shows how to find zeros or roots in a polynomial function graphically or using Rational Zero's Theorem. Scroll down the page for more examples and solutions. Find the zeros for a polynomial function - Integer zeros This video provides an introductory example of how to find the zeros for a Grade 3 polynomial function. Example: Find all zeros or roots in the given function graphically and using Rational Zero's Theorem. f(x) = x3 - 3x2 - 13x + 15 View Step-by-Step Solutions Find the zeros for a Polynomial Function - Real Rational Zeros This video provides an example of how to find the zeros on a Grade 3 polynomial function using a diagram of the function. Example: Find all zeros or roots in the given function. f(x) = 6x3 - 11x2 - 26x + 15 View Step-by-step solutions Find the zeros for a polynomial function with irrational zeros this video video an example of how to find the zeros for a Grade 3 polynomial function using a graph of the function. The function as 1 real rational zero and 2 irrational zeros. Example: Find all zeros or roots in the given function. f(x) = x3 - 4x2 - 11x + 2 View Step-by-Step Solutions Zeros of Polynomial Functions How to use the graphing calculator to find real zeros of polynomial functions? Example: Find all zeros or roots in the given function. f(x) = 3x4 - 4x3 - 11x2 + 16x - 4 Show Step-by-Step Solutions Find the zeros for a Polynomial Function A couple of examples of finding the zeros for a polynomial function. Example: Find all zeros or roots in the given functions. f(x) = 3x3 - 19x2 + 33x - 9 f(x) = x3 - 2x2 - 11x + 52 View Step-by-step Solutions Graphs polynomial in a factored form Grafing polynomials in weighted form taking into account the multiplication of zeros. Example: Graph y = -3,5x2(x - 4)3(x + 3) View Step-by-Step Solutions Try the free Mathway calculator and problem solver below to practice various math subjects. Try the given examples, or enter your own problem and check your answer with the step-by-step explanations. We welcome your feedback, comments and questions about this site or page. Submit your feedback or inquiries via our Feedback page. Call now to set up Tutorial: (888) 888-0446 College Algebra Tutorial 41: Practice Test on tutorials 34 - 40 WTAMU > Virtual Math Lab > College Algebra Learning Goals After completing this tutorial, you should be able to: Do a test on topics covered by tutorials 34 - 40 in this site. Special notes on Tutorial 41: I can not guarantee that you will pass your test after going about any of the tutorials in this site or this practice test. However, it will definitely help you better understand the topics being treated better. Disclaimer: WTAMU and Kim Seward are not responsible for how a student does any test or class for any reason including not being able to access the site due to any technical issues. There are no videos on this page. Introduction It is important to note that, chances, I am not your math instructor. You need to check with your math teacher about things like when your next math test is and what it covers. It may include more material on the sample than is in this exercise test. Just note that there are other practice tests on this site. So, after finding out what's on your test (if you have one) do the practice test(s) problems that go with the test you're preparing for. If you're not in a class or don't have a test soon, this practice test is still good practice to go through and make sure you understand this material before moving on – much like a sample check. The material on this practice test goes with Tutorial 34: Graphs of Square Tutorial 35: Graphs of polynomial polynomial Tutorial 36: Long Division, Tutorial 37: Synthetic Division and The Remainder and Factor Clauses, Guide 38: Zeros of Polynomial Functions, Part I, Tutorial 39: Zeros of Polynomial Functions, Part II, and Guide 40: Graphs of Rational Functions. Also note that your teacher may word the problems on their test a little differently, may have some different types of problems, or may have a different number of problems than what is in this practice test. Again, since I'm probably not your math instructor, I don't know exactly how your teacher will set your math test. Just note that these problems will help you build an understanding of the concepts presented and the terms used in mathematical problems. If you have an understanding of the problems instead of just memorizing them, then you should do well on these concepts, no matter how the test is set. Step to study ing for a math test work through problems. If you are in a class, you should have done this after completing all the homework you have done. For anyone, you can accomplish this by making practice problems found in each tutorial. Check your work on problems. The practice problem in each tutorial has links to the answers to them so you can immediately check how you do. Also, in most math books, the odd answers can be found in the back of the book. Review concepts. Whether you got the problems right or wrong, make sure you review over them. If you got a problem wrong, make sure you either review that concept in the respective tutorial or ask your math teacher about it. If you don't ask about a problem before a test, you will kick yourself when it comes up to the test. Work through problems as if you were doing the test - no notes, book, web pages, etc. This practice test is a perfect way to do it. After taking this practice test, check your answers by clicking on the link to the answer key located at the bottom of the practice test (before needing extra help on these topics section) it is in your favor to show as much of the work as possible about the problems that have multiple steps involved. Make sure you read the instructions carefully, you wouldn't believe how many points get removed math tests for people who don't follow the instructions. Pace himself. You don't have to be the first one done to do well on the test. Don't panic if there's still time left to take the test and others are turing it in. Sometimes this means they don't know the material and left some of the answers blank. Don't worry about anyone but yourself. Don't rush through a problem. Another thing that math teachers score points for is sloppy mistakes made by people rushing through a problem. When these students get their tests back, they bonk themselves on the head of some of the things that got counted wrong, things like them how to do it. Check your answers. If you have time, go back and check your answers. Remember to breathe!!!! I know some of you are terrified at the thought of having to take a math test of some kind. For you, try to relax and don't forget to breathe. (Even if you're not afraid to take a math test, it's probably a good idea to remember to breathe, I wouldn't want you to faint during the test). If it feels like your brain has left the building during your test, just close your eyes and breathe in and out and out and your brain comes back. Good luck on your test. If you take a math test soon, don't panic, you'll do well!!! Practice Test Problem 1a - 1b: Find the coordinates of vertex of the given square function. Without graphing, determine whether vertex is the highest or lowest point of the square function. 1a. 1b. Problem 2a - 2b: Use vertex and wiretaps to sketch the graph of the given square function. Find the equation for this function's symmetry axis. 2a. 2b. Problem 3a: Given the polynomial function a) use leading coefficient test to determine the graph's final behavior, b) find x-captures (or zeros) and indicate whether the graph crosses the x-axis or touches the x-axis and turns around at each x-intercept, c) find y-intercept, d) determine the symmetry of the chart, e) specify the maximum possible turning points, and f) graph. 3a. Problem 4a: Divide by using long division. 4a. Problem 5a: Share using synthetic division. 5a. Problem 6a: Given the f(x) function, use the residual theorem to find f(-2). 6a. Problem 7a: Solve the given equation given that 2/3 is a zero (or root) of . 7a. Problem 8a - 8b: List all possible zeros or roots, use Descartes's Rule of Signs to possibly limit it, use synthetic division to test the possible zeros or roots and find a real zero or root, and use the actual zero to find all the zeros or the actual root to find all the solutions to the given polynomial function or equation to solve. 8a. 8b. Problem 9a: Show that all real roots in the given equation are between -2 and 2. 9a. Problem 10a: Show that the given polymomium has a real zero between the given integers. Use the intermediate value kit to find an approximation for this zero to the nearest tenth. 10a. between 1 and 2. Problem 11a: Use the given root to find all the roots in the given polynome equation. 11a. Problem 12a: Factor the given polynomial function a) as the product of factors that are irreducible over rational numbers, b) as the product of factors that are irreducible over real numbers, and c) in completely factored form involving complex non-real numbers. 12a. 13a: Find a nth degree polynomial function with the given conditions. 13a. n = 3; -3i and 2 are zeros and f(1) = -20 Problem 14a: Sketch the graph of the rational function. 14a. Need extra help on these topics? WTAMU > Virtual Math Lab > College Algebra Last revised on March 20, 2011 by Kim Seward. All content copyright (C) 2002 - 2011, WTAMU and Kim Seward. All rights reserved. Reserved.