

Name: \_\_\_\_\_

Block: \_\_\_\_\_

## 4th 9 Weeks Pre-AP Algebra II Graphing Project

**Introduction:** Identifying and graphing parent functions and their translations has been a primary focus of your study of mathematics this year. You have also learned to find the inverses of functions, and graph and translate equations that are not functions (circles, and parabolas with a horizontal axis of symmetry). We have studied absolute value, linear, quadratic, exponential, logarithmic, polynomial, radical, rational and piecewise functions.

**Purpose:** You will create an e-portfolio that demonstrates your understanding of some of the functions we have studied and extend your learning to real world examples. You will learn to make an interactive Power Point® and use other software (TI®, Math GV 3.1 and Excel®) to create and display graphs.

**Project Requirements:** Keep in mind that you can always do more than the minimum. This e-portfolio may be helpful to you at a later time.

The minimum requirements for the project are:

1. Graphs of at least 4 different parent functions in standard form and include a formal definition and their domain and range in interval notation.
2. Include at least 3 graphs of translations in  $(h, k)$  form. The translations must include a reflection, and vertical and horizontal shifts.
3. Include a complete series of steps for graphing each functions you chose and a minimum of three Calculator/Technology hints for rookies.
4. Include at least one word problem with a complete graphical solution and predictions hyperlinked under the appropriate function. The correct solution of this problem is worth 20% of your grade. You will receive additional points if you collect the data yourself or do more than one problem. It cannot be linear.
5. Show your portfolio to at least 3 students or adults and document their comments in your e-mail. Make the changes they suggest.
6. Resources must be documented in MLA style, even pictures.

### **Timeline:**

**Step 1:** Find one or two application problems that you might use for your project( not linear). You may use problems found from the book or from the internet, but you must document your source(s). An example of a problem involving a polynomial function is found on [http://calculator.maconstate.edu/cubic\\_modeling\\_lesson/index.html](http://calculator.maconstate.edu/cubic_modeling_lesson/index.html) Double click on the following for a partial solution. We will be working a few more examples in class. **Come prepared and you will have less work to do outside of class.**



Microsoft Excel  
Worksheet

**Step 2:** TAKS week April 17-21 Computer Lab Instructional Days. You will learn how to graph equations with Excel, capture graphs from your calculator with a TI graphlink cable and use one other type of software. You will also learn how to create or modify an interactive Power Point during the instructional lab time.

**Please note:** This is an individual project and my expectation is that your work will be unique even if your topic is the same as a classmate.

Name: \_\_\_\_\_

Period: \_\_\_\_\_

Project due \_\_\_\_\_

## Major Grade(4th 9 weeks)

	20	15	5	0	Pts.
<b>Section 4 Word problem and graphical solution Mechanics*</b>	Includes <b>at least</b> one word problem with accurate, graphical solutions and clear explanations and predictions (non linear) <b>No math errors</b> <b>Check your work</b>	No major math errors or serious flaws in reasoning but solution is not explained.	Work is attempted, but not fully complete. There may be some serious math errors or flaws in reasoning.	Sample problem not included or inaccurate. Major math errors or serious flaws in reasoning. Application is linear.	
	<b>10</b>	<b>8</b>	<b>6</b>	<b>0</b>	
<b>Computer Lab Time</b>	Student has written plan/sketch at end of computer lab time. Student has used computer lab time effectively	Plan is Incomplete but student used time in computer lab effectively	Student attempted to put a plan together but very little work was done during class	Student did not use computer lab time efficiently and has no plan	
<b>Quality of E-portfolio</b>	Extremely organized and edited. Includes pictures and detail. Hyperlinks work. Wow!	Organized with some detail. Relatively easy to follow. Meets minimum requirements	Somewhat organized Barely meets the requirements.	No organization-random thoughts, lack of plan Does not meet the requirements.	
<b>Demonstrated knowledge</b>	Shows complete understanding of the questions, mathematical ideas, and processes	Shows substantial understanding of the problem, ideas, and processes.	Response shows some understanding of the problem, ideas and processes	Response shows a complete lack of understanding of the problem.	
<b>Section 1 Parent Functions*</b>	Includes definitions and examples of <b>at least</b> 4 parent functions with all requested details	3 parent functions are included	Includes 2 parent functions	No background information is included.	
<b>Section 2 Translations</b>	Correct form is shown and at least 3 translations for each parent function is shown including a reflection and a vertical and horizontal shift(12)	9 accurate graphs are shown	6 accurate graphs are shown	5 or less.	
<b>Section 3 Graphing Hints/ Steps</b>	Includes a complete series of steps on how to graph each function and at least 3 technology hints	Steps and hints are accurate but not complete	Steps and hints are not accurate.	Section not included.	
<b>Section 5 Feedback forms</b>	Includes summary of all 3 feedback forms with suggestions for improvement in e-mail Student has made improvements.	Includes 2 feedback forms Student has not made improvements	One feedback form.	No feedback forms included.	
<b>Section 6 Resources APA style</b>	Resources are documented accurately & completely			No resources or resources not documented completely.	
			<b>Total—&gt;</b> <b>Bonus for Sections 4 &amp; 1—&gt;</b> <b>Final Grade—&gt;</b>		

**Step 3:** After you decide what your application problem will be, where it will fit in the e-portfolio, and the 4 functions (or conics) you plan to graph, and create a basic sketch of what your e-portfolio Title page will look like. 10% of your grade will be the completion of this sketch, and your productivity in the computer lab.

**Step 4:** Create the e-portfolio using Microsoft Power Point® and include all the requested information. Examples of e-portfolios students made last year can be found at [http://rhhs.rockwallisd.com/Technology/Projects/Graphing/Graphing\\_Documents.htm](http://rhhs.rockwallisd.com/Technology/Projects/Graphing/Graphing_Documents.htm).

**Note: These projects are not graphing projects!**

**Step 5:** Share the e-portfolio with at least 3 people in your target audience and get their feedback on your work. Your target audience is someone who would use your portfolio to learn (or re-learn) how to graph. If you need to, make changes to your portfolio based on the results of the feedback.

**Step 6:** Please e-mail the project as an attachment to your teacher and include a summary of the feedback, and the changes you made to your portfolio in the body of the e-mail. Save your document as a Power Point show (\*.pps) and set up the show to view as kiosk only. Be sure you can navigate your show before you send it and it shows all your work. A confirmation e-mail will be sent when your project is received successfully.

### ***Project due date***

The due date for the project is Friday, May 5, 2006. If you do not have access to e-mail, talk to me about alternative ways to send your work well before the due date.

***Grace period.*** Your project must be e-mailed by 6:00 p.m. on Sunday, May 7, 2006, or it will be considered late and 30 points will be deducted. This is a major grade. RHHS policies will be followed.

***Questions???? E-mail me!***

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***<http://www.purplemath.com/modules/graphing.htm>***

***<http://gcalc.net/>***

***<http://www.coolmath.com/graphit/>***

***<http://nces.ed.gov/nceskids/Graphing/>***