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| SUMMER PACKETPREPARING FOR PRECALCULUS |



PreCalculus

Moorestown High School

Moorestown, New Jersey

This packet will be reviewed the first day of school.

All work must be shown and final solutions should be circled.

You are expected to understand the concepts covered in this

packet. You will be given a grade for it.

**Student’s Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**HIGH SCHOOL Calculator Requirements**

**All High School Math courses require the use of a TI-84 Plus graphing calculator. This is the same calculator that was required for Geometry.** If you need to purchase another one, many local stores carry this calculator, including Staples, Best Buy, and Walmart. This calculator can also be purchased online. It costs approximately $115.

**You should NOT use a graphing calculator to complete this packet**, unless the directions note that you can use one.

**Preparing for PreCalculus**

**The purpose of the packet is to help you review and reinforce concepts/topics that are necessary for PreCalculus. This packet has been designed to provide a review of Algebra I and Algebra II skills that are essential for student success in PreCalculus. Completion of this packet over the summer will be of great value to helping students successfully meet the academic challenges awaiting them in PreCalculus.**

**Instructions:**

Complete all sections of this packet. You will show this completed packet to your PreCalculus teacher the first day of school. All work must be shown and final answers should be circled.

Students must show work that supports their understanding. Students will be given a grade for completing the packet correctly.

It may be necessary to seek assistance on some questions/concepts... that is fine!

**Websites that may be of assistance:**

www.mathforum.org/dr.math Use this web site if you have math questions that you need answered.

www.allmath.com This website will provide you with links to games, reference materials, general math help and resources.

www.mathforum.com This online community includes teachers, students, researchers, parents and educators who have an interest in math and math education. The site includes Ask Dr. Math, Problems of the Week, discussion groups and much more.

www.AAAmath.com. Customized by grade level and topic, AAA Math features explanations of various mathematical topics, practice problems and fun, challenging games.

www.coolmath.com This fully interactive site allows the user to sharpen basic math skills, play games and explore new math concepts.

www.figurethis.org Created by the National Council of Teachers of Mathematics, this site helps families enjoy mathematics outside school through a series of fun and engaging challenges.

**The more math you explore, the more prepared you will be in September!**

Algebra I and Algebra II Topics

**Factoring Polynomials**

Factoring by GCF

Factoring  and 

Factoring by Grouping

Factoring Special Products

Multiplying Polynomials

Solving Polynomial Equations

**Functions**

Graphing Transformations of Parent Functions

Writing Rules for Transformations

Evaluating Functions

Finding Domain and Range

Determining Increasing and Decreasing Ranges

**Rational Expressions and Equations**

Simplifying Complex Fractions

Simplifying Rational Expressions

Adding and Subtracting Rational Expressions

Multiplying and Dividing Rational Expressions

Solving Equations Involving Rational Expressions

**Complex Numbers**

Adding and Subtracting Complex Numbers

Multiplying and Dividing Complex Numbers

**Logarithms**

Evaluating Logarithmic Expressions

Expanding and Condensing Logarithms

Solving Logarithmic Equations

**Trigonometry**

Converting Between Degrees and Radians

Using the Unit Circle

**Factor each polynomial completely.**

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**Solve each equation by factoring, using square roots, or using the quadratic formula.**

**Check your answer.**

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**Simplify the complex fractions.**

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**Evaluate the functions.**

|  |  |
| --- | --- |
| 1. Find, given
 | 1. Find, given
 |
| 1. Find, given
 | 1. Find, given
 |

**Use the graph to evaluate.**

|  |  |
| --- | --- |
| Image result for evaluating functions from a graph | 1.
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| 1.
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**Give the domain and range of each function.**

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| 1.
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 |
| Image result for domain and range from graph |  |

**State where the function is increasing and decreasing.**

|  |  |
| --- | --- |
| 1.
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| Image result for increasing and decreasing intervals from graph |  |

**Multiply and simplify.**

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**Simplify.**

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**Graph the following core graphs and the given transformation on the same coordinate grid.**

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 |
| Image result for coordinate grid | Image result for coordinate grid |
| 1. ;
 | 1. ;
 |
| Image result for coordinate grid | Image result for coordinate grid |

**Write a rule for  given the following transformations of the given parent function.**

|  |  |
| --- | --- |
| 1. Let the graph of *g* be a horizontal stretch by a factor of 3, followed by a translation 1 unit up of the graph of .
 | 1. Let the graph of *g* be a translation 5 units down, followed by a reflection in the y-axis of the graph of .
 |
| 1. Let the graph of *g* be a vertical stretch by a factor of 4, followed by a translation 3 units left of the graph of
 |

**Simplify the following rational expressions.**

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**Add or subtract the following rational expressions and simplify.**

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**Multiply or divide the following rational expressions and simplify.**

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**Solve the following equations.**

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**Evaluate the following logarithmic expressions.**

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 |

**Simplify the following logarithmic expressions.**

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 |

**Expand or condense the logarithmic expression.**

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**Solve the equation. Check for extraneous.**

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**Convert the degree measure to radians and the radian measure to degrees in simplest form.**

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**Use your knowledge of the unit circle to evaluate the function in simplest radical form.**

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**Algebraic Errors to Avoid**

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| --- | --- | --- |
| **Error** | **Correct form** | **Comments** |
|   |  | Change all signs when distributing a negative through parentheses |
|   |  | Don’t forget the middle term when squaring binomials |
|   |  |  occurs twice as a denominator |
|   | Leave as  | Don’t add denominators when adding fractions |
|   |  | Multiply by the reciprocal of the denominator |
|   |  | Use the definition for multiplying fractions |
|   |  | Be careful when using a slash to denote division |
|   |  | Multiply exponents when an exponential form is raised to a power |
|   |  | Exponents have priority over coefficients |
|   | Leave as  | Don’t shift term-by-term from denominator to numerator |
|   |  | Radicals apply to every factor inside the radical sign |
|   | Leave as  | Don’t apply radicals term-by-term |
|  |  | Cancel common factor *not* common terms |
|   |  | Factor *before* canceling |