

**PRTs for Precalculus – by Dr. Tatyana Flesher, Associate Professor, Department of Mathematics
Medgar Evers College, CUNY**

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PRT on functions

| Obstacles | KhanAcademy.org videos |
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| I do not know what a function is | Introduction to functions Functions Part 2 A more formal understanding of functions |
| I do not know what is the difference between equations and functions | Difference between Equations and Functions |
| I do not know how to evaluate function | Function example problems Functions (Part III) |
| I do not know how to test whether a relation is a function | Functions as Graphs |
| I do not know how to evaluate a composite function | Functions (part 4) □ |
| I do not know how to find the sum of the functions | Sum of Functions □ |
| I do not know how to find the difference of the functions | Difference of Functions |
| I do not know how to find the product of the functions | Product of Functions |
| I do not know how to find the quotient of the functions | Quotient of Functions |
| I do not know what is the domain of the function | Domain of a function Domain and Range 2 □ Domain and Range of a Function |
| I do not know what is the range of the function | Domain and Range of a Relation |
| I do not know how to find domain and range of a function given a formula | Domain and Range of a Function Given a Formula Domain of a Radical Function |
| I do not know what is an inverse function | Introduction to the inverse of a function Introduction to Function Inverses Function Inverse Example 1 Function Inverses Example 2 Function Inverses Example 3 □ |
| I do not know what function is odd/even and how to test for oddness/evenness | Recognizing Odd and Even Functions Connection between even and odd numbers and functions □ |
| I do not know what vertical and horizontal shift is. | Shifting functions □ |
| I do not know what vertical and horizontal stretch/shrink is | Shifting functions □ |

PRT on quadratic functions

| Obstacles | KhanAcademy.org videos |
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| I do not know how to graph a quadratic function | Ex 3: Graphing a quadratic function Graphs of Quadratic Functions |
| I do not know how to find roots and vertex of the parabola and how to use them to graph the parabola | Example: Roots and vertex of a parabola □ |
| I do not know how to find a vertex and axis of symmetry of parabola | Example: Parabola vertex and axis of symmetry □ |

PRT on rational functions

| Obstacles | KhanAcademy.org videos |
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| I do not know what are the vertical and horizontal asymptotes of rational function | Asymptotes of Rational Functions □ |
| I do not know how to graph rational functions | Another Rational Function Graph Example A Third Example of Graphing a Rational Function □ |

PRT on exponential functions

| Obstacles | KhanAcademy.org videos |
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| I do not know how to evaluate and to graph exponential function | Exponential Growth Functions Ex: Graphing exponential functions |

PRT on logarithmic functions

| Obstacles | KhanAcademy.org videos |
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| I do not know how to evaluate and to graph logarithmic function (Review) | Graphing Logarithmic Functions |
| I do not know what a logarithm is | Introduction to Logarithms |
| I do not know how to write a logarithmic statement as an exponential statement | Logarithmic Equations |
| I do not know how to use a calculator to evaluate logarithms in base 10 and e | Natural Logarithm with a Calculator Calculator for Natural Logarithms |
| I do not know the properties of logarithms | Introduction to logarithm properties |

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| | <u>Introduction to logarithm properties (part 2)</u> |
| I do not know how to expand logarithmic expression | <u>Sum of Logarithms with Same Base</u> <u>Using Multiple Logarithm Properties to Simplify</u> |
| I do not know how to condense a logarithmic expression to a single logarithm | <u>Proof: $\log a + \log b = \log ab$</u> |
| I do not know how to use a calculator to evaluate logarithms in arbitrary bases | <u>Change of Base Formula</u> |
| I do not know how to solve a logarithmic equation with a single logarithm on one side | <u>Logarithmic Equations</u> |
| I do not know how to solve a logarithmic equation with several logarithms on each side | <u>Solving Logarithmic Equations</u> |

PRT on trigonometry

| Obstacles | KhanAcademy.org videos |
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| I do not know what trigonometric functions of right triangle are | <u>Basic Trigonometry</u> <u>Basic Trigonometry II</u> <u>Example: Using soh cah toa</u> <u>Example: The six trig ratios</u> □ |
| I do not know how to find all trigonometric functions if some of them are given | <u>Example: Using trig to solve for missing information</u> |
| I do not know how to use calculator to evaluate trigonometric functions | <u>Example: Calculator to evaluate a trig function</u> |
| I do not know how to solve right triangle using trigonometry | <u>Example: Trig to solve the sides and angles of a right triangle</u> <u>Example: Solving a 30-60-90 triangle</u> <u>Using Trig Functions</u> <u>Using Trig Functions Part II</u> |
| I do not know what radians are | <u>Introduction to radians</u> <u>Radians and degrees</u> |
| I do not know how to find arc length using radians | <u>Example: Radian measure and arc length</u> |
| I do not know how to convert degrees to radians and radians to degrees | <u>Radian and degree conversion practice</u> □ <u>Example: Converting degrees to radians</u> <u>Example: Converting radians to degrees</u> |
| I do not know what is unit circle and how to define trig functions using the unit circle | <u>Unit circle definition of trig functions</u> <u>Example: Unit circle definition of sin and cos</u> <u>Unit Circle Manipulative</u> |
| I do not know how to find trig functions using the unit circle | <u>Example: Trig function values using unit circle definition</u> |
| I do not know how to determine the signs of trigonometric functions | <u>Example: The signs of sine and cosecant</u> |

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| I do not know how to solve word problems using trig | Trigonometry word problems (part 1) Trigonometry word problems (part 2) |
| I do not know how to graph sine function | Example: Graph, domain, and range of sine function Graph of the sine function |
| I do not know how to graph sine function using period and amplitude | Example: Amplitude and period Graphing trig functions More trig graphs |
| I do not know how to graph cosine function | Example: Graph of cosine |
| I do not know how to use transformation to graph trig functions | Example: Amplitude and period transformations Example: Amplitude and period cosine transformations |

PRT on inverse trigonometric functions

| Obstacles | KhanAcademy.org videos |
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| I do not know what inverse trigonometric functions are | Inverse Trig Functions: Arcsin Inverse Trig Functions: Arccos Inverse Trig Functions: Arctan |
| I do not know how to find inverse trigonometric functions using calculator | Example: Calculator to evaluate inverse trig function |

PRT on trigonometric identities

| Obstacles | KhanAcademy.org videos |
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| I do not know what basic trigonometric identities are | Trigonometric Identities Trigonometry Identity Review/Fun |
| I do not know what the law of sines is | Proof: Law of Sines |
| I do not know what the law of cosines is | Law of cosines |
| I do not know how to use laws of sines and cosines | Navigation Word Problem |