

PreAICE Math 10

Graphing and Systems Reporting Standard

PS 1-Demonstrate familiarity with Cartesian co-ordinates in two dimensions and interpret and use graphs in practical situations including travel and conversion graphs

PS 2-Apply the idea of rate of change by using distance-time and speed-time graphs, acceleration and deceleration, and calculate distance traveled as area under a speed-time graph

PS 3-Find the gradient of a straight-line graph and estimate gradients of curves by drawing tangents; solve associated equations by graphical methods.

Interpreting Functions Reporting Standard

PS 4-Construct tables of values for functions and draw and interpret the graphs of linear, quadratic, cubic, and reciprocal functions.

PS 5-Use function notation to describe simple functions, evaluate a function for a given domain

PS 6-Solve problems that can be represented by exponential or logarithmic equations.

PS 7-Recognize and describe reflections, rotations, translations, enlargements, shears, stretches and their combinations.

Building Functions Reporting Standard

PS 8-Form composite functions as defined by $gf(x) = g(f(x))$

PS 9-Convert between exponential and logarithmic form and expand or condense expressions using log rules.

PS 10-Find the inverse of functions

Statistics and Probability Reporting Standard

PS 11-Understand and use mean, median, mode and correlation; estimate the median, percentiles, quartiles and inter-quartile range; calculate an estimate of the mean for grouped and continuous data; identify the modal class from a grouped frequency distribution.

PS 12-Construct and read histograms with equal and unequal intervals; construct and use cumulative frequency diagrams.

PS 13-Calculate the probability of a single event and simple combined events, using possibility diagrams and tree diagrams where appropriate.

PS 14-Apply procedures for counting techniques such as the fundamental counting principle, permutations and combinations and use those to calculate probabilities.

Trigonometric Reporting Standard

PS 15-Apply the Pythagorean theorem and the sine, cosine, and tangent ratios to solve for missing elements of a triangle and for three-figure bearings measured clockwise from the north.

PS 16-Solve trigonometrical problems in two- and three-dimensions including angles of elevation and depression; use sine and cosine rules; and finding the area of a triangle by using trigonometric principles.

PS 17-Generate a unit circle and use it to evaluate trigonometric ratios and convert between radians and degrees

PS 18-Know and apply trigonometric identities and use them to solve problems containing trigonometric functions

Series, Sequences, and Vectors Reporting Standard

PS 19-Distinguish between arithmetic and geometric sequences and write an expression for the general term of arithmetic and geometric sequences

PS 20-Find the partial sums of arithmetic and geometric series and infinite geometric series where appropriate.

PS 21-Describe a translation by using a vector represented by e.g. \vec{a} or \vec{a} . Add and subtract vectors and multiply a vector by a scalar. Calculate the magnitude of a vector.

PS 22-Represent vectors by directed line segments; use the sum and difference of two vectors to express given vectors in terms of two coplanar vectors. Find and use position vectors.

Matrices Reporting Standard

PS 23-Identify the order of a matrix and display information in the form of a matrix of any order. Calculate the sum, difference and product (where appropriate) of two matrices and calculate the product of a matrix and a scalar quantity

PS 24-Calculate the determinant and inverse A^{-1} of a non-singular 2×2 matrix A . Transform an image given a transformation matrix. Determine the matrix that will transform a given object into a given image.

PS 25-Identify and give precise descriptions of transformations connecting given figures; describe transformations using coordinates and matrices.
