

Lesson 1

PC.1.a Define the trigonometric ratios sine, cosine, and tangent

Lesson 2

- PC.2.a Show the inverse relationship between sine and cosecant
- PC.2.b Show the inverse relationship between cosine and secant
- PC.2.c Show the inverse relationship between tangent and cotangent
- PC.2.d Convert any ratio from fraction form to rounded decimal form
- PC.2.e Use the Pythagorean theorem to find the length of the missing side of a right triangle

Lesson 3

- PC.3.a Find trigonometric ratios for angles that are listed in a table
- PC.3.b Find the angle for trigonometric ratios that are listed in a table
- PC.3.c Express tangent in terms of sine and cosine
- PC.3.d Express cotangent in terms of sine and cosine

Lesson 4

PC.4.a Find the measure of the missing side of a right triangle using trigonometric ratios

Lesson 5

- PC.5.a Use a calculator to find the trigonometric ratios for any angle
- PC.5.b Use a calculator to find the angle associated with a trigonometric ratio
- PC.5.c Convert Degrees, Minutes, and Seconds (DMS) to Decimal Degrees (DD) using unit multipliers or conversion factors
- PC.5.d Convert DD to DMS using unit multipliers or conversion factors
- PC.5.e State the inverse relationship between trigonometric functions in general and their arc functions

Lesson 6

- PC.6.a Define the angle of elevation and angle of depression
- PC.6.b Model a word problem involving trigonometry with a drawing
- PC.6.c Apply knowledge of trigonometry to solve word problems

Lesson 7

- PC.7.a Define initial side, terminal side, and coterminal
- PC.7.b Explain positive and negative rotation with respect to angles
- PC.7.c Identify the quadrant in which the terminal side of an angle lies

Lesson 8

- PC.8.a Describe the relationship between cofunctions and complementary angles
- PC.8.b Find the value of a trigonometric function of negative theta when given the trigonometric function of theta

Lesson 9

PC.9.a Prove trigonometric identities

Lesson 10

- PC.10.a Evaluate trigonometric expressions containing angle measures with reference angles of 0° , 30° , 45° , 60° , and 90°
- PC.10.b Express evaluated trigonometric expressions in simplest exact form

Lesson 11

PC.11.a Apply the sum and difference identities to calculate sine, cosine, and tangent ratios for angles

Lesson 12

PC.12.a Apply the double and half-angle identities to calculate sine, cosine, and tangent ratios for angles

Lesson 13

- PC.13.a Apply the law of sines to find missing parts of a triangle
- PC.13.b Explain why the law of sines can sometimes give misleading answers
- PC.13.c Evaluate the level of reliability of the law of sines in given situations
- PC.13.d Explain a strategy for guarding against errors caused by the ambiguity in the law of sines

Lesson 14

PC.14.a Apply the law of cosines to find missing parts of a triangle

Lesson 15

- PC.15.a Convert angle measures from degrees to radians
- PC.15.b Convert angle measures from radians to degrees

Lesson 16

- PC.16.a Plot a point using polar coordinates on a rectangular coordinate system
- PC.16.b Convert polar coordinates to rectangular coordinates
- PC.16.c Plot a point using polar coordinates on a rectangular coordinate system when the distance is negative
- PC.16.d Convert rectangular coordinates to polar coordinates
- PC.16.e Present a model that makes intuitive sense of negative angle measures and negative distances in polar coordinates
- PC.16.f Plot points on a polar coordinate system

Lesson 17

- PC.17.a Rewrite a rectangular equation as a polar equation
- PC.17.b Rewrite a polar equation as a rectangular equation

Lesson 18

- PC.18.a Convert polar and rectangular coordinates to vector form
- PC.18.b Convert vectors to rectangular or polar form
- PC.18.c Add two vectors to find a resultant vector
- PC.18.d Subtract one initial vector from a resultant vector to find the other initial vector
- PC.18.e Model vector addition and subtraction visually

Lesson 19

- PC.19.a Define the term function
- PC.19.b Model the concept of a function
- PC.19.c State whether a given relation is a function, based on formula or graph
- PC.19.d Calculate the value of a function with various inputs
- PC.19.e State the domain and range of a function

Lesson 20

- PC.20.a Evaluate the sum or difference of two functions
- PC.20.b Evaluate the product or quotient of two functions
- PC.20.c Evaluate a composite function

Lesson 21

- PC.21.a Rewrite an exponential expression as a logarithmic expression
- PC.21.b Rewrite a logarithmic expression as an exponential expression
- PC.21.c Give the base 10 log powers of 10
- PC.21.d Read logs from a log table
- PC.21.e Find the log of numbers not in the log table, using interpolation
- PC.21.f Define the terms characteristic and mantissa
- PC.21.g Explain the meaning of an antilog
- PC.21.h Find the antilog of a number
- PC.21.i Solve logarithmic equations

Lesson 22

- PC.22.a Define natural log as log base e
- PC.22.b State the natural logs of zero and one
- PC.22.c Explain the inverse relationship between e^x and $\ln(x)$
- PC.22.d State the rules for $\ln(xy)$, $\ln\left(\frac{x}{y}\right)$, and $\ln(x^a)$
- PC.22.e Simplify expressions using the natural log or exponential function
- PC.22.f Solve equations using natural log or exponential functions

Lesson 23

- PC.23.a Graph the function $y = \sin(x)$
- PC.23.b Graph the function $y = \cos(x)$
- PC.23.c Define the terms period, shift, translation, and amplitude
- PC.23.d Graph variations of the basic sine and cosine graphs
- PC.23.e Determine the equation of a sine or cosine graph

Lesson 24

- PC.24.a Graph the function $y = \csc(x)$
- PC.24.b Graph the function $y = \sec(x)$
- PC.24.c Graph variations of the basic cosecant and secant graphs
- PC.24.d Define the term asymptote

Lesson 25

- PC.25.a Graph the function $y = \tan(x)$
- PC.25.b Graph the function $y = \cot(x)$
- PC.25.c Graph variations of the basic tangent and cotangent graphs

Lesson 26

- PC.26.a Define the terms sequence, arithmetic sequence, finite sequence, infinite sequence, and series
- PC.26.b Determine the common difference in a given arithmetic sequence
- PC.26.c Use the formula to find the n th term of a sequence
- PC.26.d Identify the parts of sigma notation
- PC.26.e State two formulas for finding the sum of an arithmetic series: one with d , and the other without
- PC.26.f Compute the sum of an arithmetic series

Lesson 27

- PC.27.a Define a geometric sequence
- PC.27.b Define a common ratio
- PC.27.c Give the formula for finding the n th term in a geometric sequence
- PC.27.d Find the n th term in a geometric sequence
- PC.27.e Give the formula for finding the sum of a geometric series
- PC.27.f Compute the sum of a geometric series

Lesson 28

- PC.28.a Solve equations containing absolute value expressions
- PC.28.b Solve equations containing radical expressions
- PC.28.c Identify equations with no solution
- PC.28.d Identify situations that would result in extraneous solutions for equations containing radical or absolute value expressions

Lesson 29

- PC.29.a Solve inequalities containing absolute value expressions
- PC.29.b Graph one-dimensional inequalities containing absolute value expressions
- PC.29.c Solve inequalities containing radical expressions
- PC.29.d Graph one-dimensional inequalities containing radical expressions

Lesson 30

- PC.30.a Give an operational definition of a limit
- PC.30.b Identify the parts of an expression containing limit notation
- PC.30.c Evaluate limits of functions shown on graphs
- PC.30.d Evaluate limits algebraically
- PC.30.e Give operational definitions of right- and left-handed limits