

Trigonometric Functions

Curriculum Expectations

By the end of this course, students will:

- describe key properties of periodic functions, given numeric or graphical representations
- predict the future behaviour of relationships modelled using periodic functions
- make connections between trigonometric ratios and their associated functions, by graphing the relationship between angles from 0° to 360° and the corresponding ratios
- sketch the graphs of trigonometric functions for angles expressed in degrees, and describe their key properties
- determine the roles of the parameters a , b , c , and d in functions of the form $y = af(b(x - c)) + d$, where f is a trigonometric function with angles expressed in degrees, and describe these roles in terms of transformations
- determine the amplitude, period, phase shift, domain, and range of sinusoidal functions
- sketch graphs of sinusoidal functions by applying one or more transformations to their graphs, then state the domains and ranges of the transformed functions
- represent a sinusoidal function with an equation, given its graph or its properties
- collect and analyze data that can be modelled as a sinusoidal function
- identify periodic and sinusoidal functions, including those that arise from real-world applications involving periodic phenomena, given various representations, and explain any restrictions placed on the domain and range
- determine how sinusoidal functions can be used to model periodic phenomena that do not involve angles
- predict the effects on a mathematical model of an application involving periodic phenomena when the conditions in the application are varied
- pose and solve problems based on applications involving sinusoidal functions

Schedule of Topics

Day	Topic	Homework	Questions?
1	Periodic Functions	p.289 #C1-C3, #1-4,6-11,13	
2	Sine, Cosine and Tangent Functions	None	
3	Transformations of Sinusoidal Functions	p.309 #C1-C3, #1-3,6-9, p.318 #1-2	
4	Graphing Sinusoidal Functions	p.318 #1-2 (graphs), 3-4,8,9,11,12,17	
5	Equations of Sinusoidal Functions	Worksheet	
6	Solving Trigonometric Equations	Worksheet	
7,8	Modelling Using Trigonometric Equations	p.328 #3-8,12, p.337 #1-2,4-7,9,10,14,16	
9	Review	pp.344-347	

Assessment and Evaluation

Quiz/Test/Task	Date	K	A	T	C

Skills Checklist

At the end of this strand, I am able to:

- | | | | |
|---|---------------------------------|--------------------------------|---------------------------------|
| • Identify if a function is periodic, and state its period | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • Determine the minimum/maximum values of periodic functions | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • Make predictions about past/future values of periodic functions | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • Sketch the basic graphs of trigonometric functions | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • Determine properties/key values of trigonometric functions | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • Describe transformations applied to basic sinusoidal functions | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • Determine properties/key values of transformed functions | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • Graph transformed sinusoidal functions | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • Determine equations of transformed sinusoidal functions | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • State the domain and range of transformed functions | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • Evaluate trigonometric equations | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • Solve trigonometric equations | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • Solve applications involving sinusoidal functions | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |
| • Develop models for situations involving sinusoidal functions | <input type="checkbox"/> Always | <input type="checkbox"/> Often | <input type="checkbox"/> Seldom |

Student Comments

Parent/Guardian Comments

Teacher Comments