

# Learning Targets

## Trigonometric Functions

### Lesson 1: Moving in Circles

- I can use the Pythagorean Theorem to find coordinates of points on a circle centered at the origin.
- I understand that a periodic function is one with outputs that repeat at regular intervals.

### Lesson 2: Revisiting Right Triangles

- I understand how to use trigonometry to express the coordinates of a point in quadrant 1 that is 1 unit away from the origin.

### Lesson 3: The Unit Circle (Part 1)

- I understand that a radian angle measurement is the ratio of the arc length to the radius of the circle.
- I understand that points on a unit circle can be defined by their coordinates or by an angle of rotation.

### Lesson 4: The Unit Circle (Part 2)

- I can find different angles on the unit circle and estimate their coordinates.

### Lesson 5: The Pythagorean Identity (Part 1)

- I can use the Pythagorean Identity to calculate values of coordinates given one coordinate to start from.
- I understand that the coordinates of a point on the unit circle at  $\theta$  radians can be written as  $(\cos(\theta), \sin(\theta))$ .

### Lesson 6: The Pythagorean Identity (Part 2)

- I can use the Pythagorean Identity to find the values of cosine, sine, and tangent of an angle if I know one of them and the quadrant of the angle.

### Lesson 7: Finding Unknown Coordinates on a Circle

- I can use cosine and sine to figure out information about points rotating in circles.

### **Lesson 8: Rising and Falling**

- I understand that the graph of a periodic function can look like a wave whose outputs repeat between the same maximum and minimum values.

### **Lesson 9: Introduction to Trigonometric Functions**

- I can use the coordinates of points on the unit circle to graph the cosine and sine functions.

### **Lesson 10: Beyond $2\pi$**

- I understand how to find the values of cosine and sine for inputs greater than  $2\pi$  radians.

### **Lesson 11: Extending the Domain of Trigonometric Functions**

- I understand how to find the values of cosine and sine for inputs less than 0 radians.

### **Lesson 12: Tangent**

- I can explain why the tangent function has a period of  $\pi$ .
- I understand why the graph of tangent has asymptotes.

### **Lesson 13: Amplitude and Midline**

- I can write a trigonometric function to represent situations with different amplitudes and midlines.

### **Lesson 14: Transforming Trigonometric Functions**

- I can graph a horizontal translation of a trigonometric function.
- I can use the amplitude and midline of a trigonometric equation to describe a situation.

### **Lesson 15: Features of Trigonometric Graphs (Part 1)**

- I can identify the midline, amplitude, and horizontal translation of a trigonometric function given a graph or equation.

### **Lesson 16: Features of Trigonometric Graphs (Part 2)**

- I can find the period of a trigonometric function using an equation or graph.

**Lesson 17: Comparing Transformations**

- I can ask questions to figure out how a trigonometric function was transformed.
- I can create an equation of a trigonometric function using information about its graph.

**Lesson 18: Modeling Circular Motion**

- I can represent a circular motion situation using a graph and an equation.

**Lesson 19: Beyond Circles**

- I can create a model of data that is approximately periodic and use the model to make predictions.