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| * Use the **Law of Sines** when you know AAS, ASA, and SSA (the Ambiguous Case. (Pages 427 – 431) |
| * Law of Sines | |

**TUESDAY (4.15.25)**

**The Law of Sines Test:** You may use one sheet of paper, 8.5 by 11 inches, front and back, when you take this test.

**Class Work/Homework:**

* **Finish your** **Stonybrooke River Bridge Project** if you have not already done so. This project is due at the beginning of your next class period.
* **Complete the table that you will receive in class:** *The Trig Functions of the Special Angles.*

**THURSDAY 4.17.25)**

**Turn in your Stonybrooke River Bridge Project** at the beginning of class.

**Discuss the previously assigned table:** *The Trig Functions of the Special Angles.*

**Review the conversions** of radians to degrees and degrees to radians.

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| **NEW OBJECTIVES** \_Chapter 4: Section 4.3, *Trigonometry Extended* (Pages 331–339). |
| * Find the trigonometric functions of **any** angle, in degrees or in radians. |
| * Understand the periodic nature of the trig functions. |
| * Define the unit circle as having a center at the origin and a radius equal to one. |
| * Fill in the degrees, radians, and ordered pairs on the 16-Point Unit Circle. |
| * Use the unit circle as a schematic device. |
| * Use circular trigonometric to solve an expanded world of applications, which would be impossible with right triangle trigonometry. |

**Class Work/Homework:** Fill in the degrees, radians, and ordered pairs on a blank unit circle.

**Fill in The Unit Circle.**

Positive: Positive:

Negative: Negative:

A circular graph with many points

Description automatically generated with medium confidence

Positive: Positive:

Negative: Negative:

**FRIDAY (4.18.25) A-DAY, NO CLASS**

**TUESDAY (4.22.24)**

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| ***Chapter 4, Section 3, Trigonometry Extended: The Circular Functions* (Pages 331 – 340)**  **OBJECTIVES:**   * Use the unit circle (with a radius of 1 unit and a center at the origin) **and** any other circle of radius, *r*, to evaluate the 6 trigonometric functions for an angle when given a point on its terminal side. * Use circular trigonometry to find the six trigonometric functions of an angle *θ* for which you know a point on the terminal side of angle *θ*. * Understand that extending trigonometric functions beyond right triangle ratios of acute angles more aptly applies to real world situations where angular measures can be any number, either positive or negative.   **Technology:** Smart Board, graphing calculator (TI-83 or TI-84) |
| |  |  |  | | --- | --- | --- | | **THE UNIT CIRCLE:** A **unit circle** is a circle with a radius of one (a unit radius).  In trigonometry, the unit circle is centered at the origin.  For the point (*x, y*) in Quadrant I, the lengths *x* and *y* become the legs of a right triangle whose hypotenuse is 1.     By the Pythagorean Theorem,  we have x2 + *y*2 = 12 or*x*2 + *y*2 = 1. | |  | | --- | | http://www.regentsprep.org/Regents/math/algtrig/ATT5/unitcircle.gif | |  |  |  |  | | --- | --- | --- | | |  | | --- | | http://www.regentsprep.org/Regents/math/algtrig/ATT5/unitcircletrig.gif | | If we examine angle http://www.regentsprep.org/Regents/math/algtrig/ATT5/unitci46.gif(in standard position)  in this unit circle, we can see that   http://www.regentsprep.org/Regents/math/algtrig/ATT5/unitci47.gif which show us that in a unit circle, http://www.regentsprep.org/Regents/math/algtrig/ATT5/unitci48.gif also creating  http://www.regentsprep.org/Regents/math/algtrig/ATT5/unitci49.gif Sine is represented by the vertical leg. Cosine is represented by the horizontal leg. | | Note that   http://www.regentsprep.org/Regents/math/algtrig/ATT5/unitci50.gif     becomes    http://www.regentsprep.org/Regents/math/algtrig/ATT5/unitci51.gif | |     **THE SIX TRIGONOMETRIC FUNCTIONS FOR ANGLES ON A UNIT CIRCLE:**   |  |  | | --- | --- | | **sin *θ* =** | **csc *θ* =** | | **cos *θ* =** | **sec *θ* =** | | **tan *θ* =** | **cot *θ* =** |   [http://www.studydroid.com/imageCards/0k/vh/card-22004793-back.jpg](http://www.google.com/url?sa=i&rct=j&q=&esrc=s&source=images&cd=&cad=rja&uact=8&docid=zttVfpyENysxCM&tbnid=h7-y_mlilZnIuM:&ved=0CAYQjRw&url=http://www.studydroid.com/index.php?page=viewPack&packId=350699&ei=Z58rU_6_Dom4kQfwqoHICw&bvm=bv.62922401,d.eW0&psig=AFQjCNHNap2o_VCk4genNxMQtsvKUcFSjw&ust=1395453956249592)  http://www.regentsprep.org/Regents/math/algtrig/ATT3/bowtie.gifA reference triangle is formed by "dropping" a perpendicular from the terminal ray of a standard position angle to the *x*-axis.   Remember, it must be drawn to the *x*-axis.  Reference triangles are used to find trigonometric values for their standard position angles.  They are of particular importance for standard position angles whose terminal sides reside in quadrants II, III and IV.  A reference triangle contains a reference angle.  http://www.regentsprep.org/Regents/math/algtrig/ATT3/signchart.gif  **Fill in the table below,** defining the ***Trigonometric Functions of Any Angle.*** See page 333, bottom of page.  Let *θ* be any angle in standard position, and let *P(x, y)* be any point on the terminal side of the angle. Let *r* denote the distance from *P(x, y)* to the origin.  That is, let r = √ (x2 + y2). Then,   |  |  | | --- | --- | | **sin *θ* =** | **csc *θ* =** | | **cos *θ* =** | **sec *θ* =** | | **tan *θ* =** | **cot *θ* =** |   **CLASS WORK/HOMEWORK:**   * Be able to fill in the degrees, radians, and ordered pairs for the special angles on a blank unit circle. * Find the six trigonometric functions of an angle ***θ*** in standard position whose terminal side contains the point (-5, 3). Illustrate the situation. |