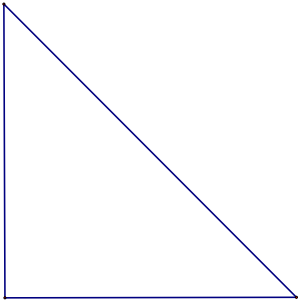
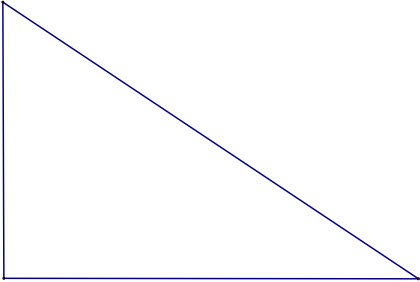


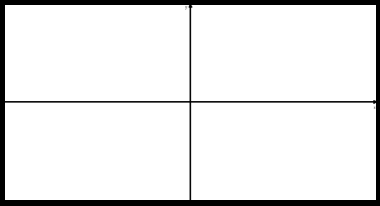
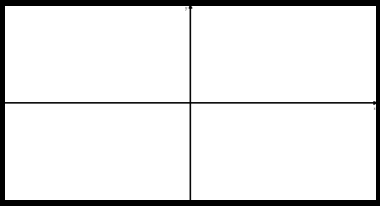
**(A) Lesson Objectives**

- Review the 2 special triangles and the exact trig ratios of special angles  $30^\circ$ ,  $45^\circ$ , &  $60^\circ$ .
- Solve linear trig equations wherein the solution is one of the “special angles”
- Solve linear trig equations wherein the solution is one of the quadrantal angles
- Solve linear trig equations wherein the solution is one of the “special angles”
- Use a multi-representational approach to solving equations

**(B) Review of Special Triangles & Angles & Their Trig Ratios**

<p>45° - 45° - 90° Triangle</p> 	<p>30° - 60° - 90° triangle</p> 	
<p><math>\sin(45^\circ) =</math>  <math>\cos(45^\circ) =</math>  <math>\tan(45^\circ) =</math></p>	<p><math>\sin(30^\circ) =</math>  <math>\cos(30^\circ) =</math>  <math>\tan(30^\circ) =</math></p>	<p><math>\sin(60^\circ) =</math>  <math>\cos(60^\circ) =</math>  <math>\tan(60^\circ) =</math></p>

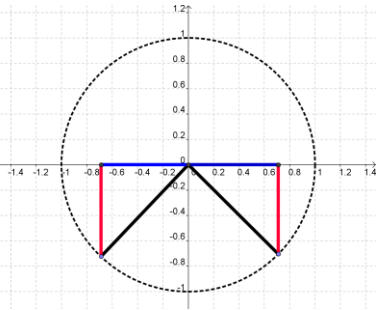
**(C) Review of Quadrantal Angles & Their Trig Ratios**

	0	90	180	270	360
<p><math>\sin(\theta)</math></p> 					
<p><math>\cos(\theta)</math></p> 					

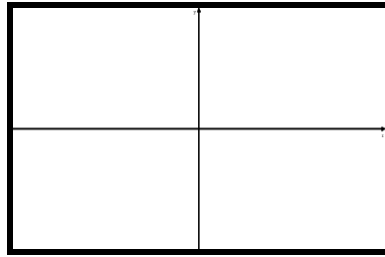
**(D) Solving Linear Trigonometric Equations – Special Angles – Example #1**

Solve the equation  $\sin(\theta) = -\frac{1}{\sqrt{2}}$  for  $-180^\circ \leq \theta \leq 360^\circ$

Triangle/unit circle visual approach



Graphic approach



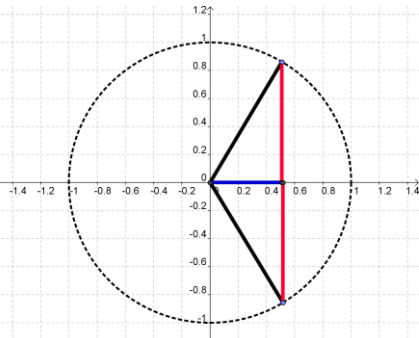
Analytical approach

Alternate “forms” of the equation:

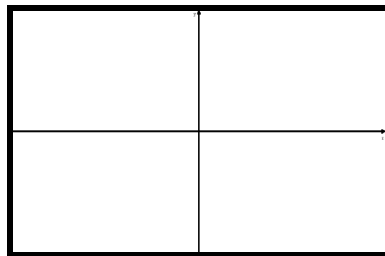
**(E) Solving Linear Trigonometric Equations – Special Angles – Example #2**

Solve the equation  $\cos(\theta) = \frac{1}{2}$  for  $-90^\circ \leq \theta \leq 540^\circ$

Triangle/unit circle visual approach



Graphic approach



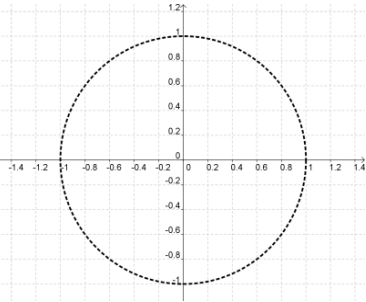
Analytical approach

Alternate “forms” of the equation:

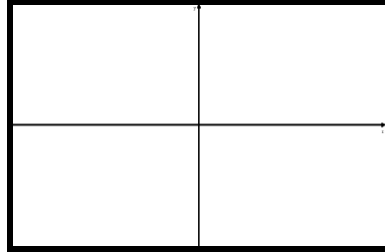
**(F) Solving Linear Trigonometric Equations – Example #3**

Solve the equation  $2\cos\theta + \sqrt{3} = 0$  on the domain  $-180^\circ \leq \theta \leq 360^\circ$

Triangle/unit circle visual approach



Graphic approach

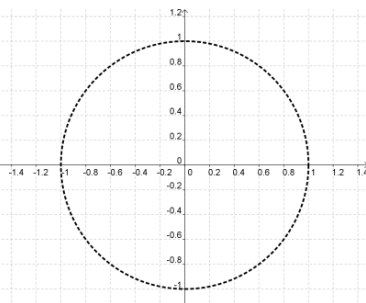


Analytical approach

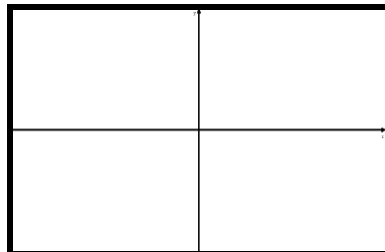
**(G) Solving Linear Trigonometric Equations – Example #4**

Solve the equation  $\sqrt{3}\tan\theta - 1 = 0$  on the domain  $-360^\circ \leq \theta \leq 360^\circ$

Triangle/unit circle visual approach



Graphic approach

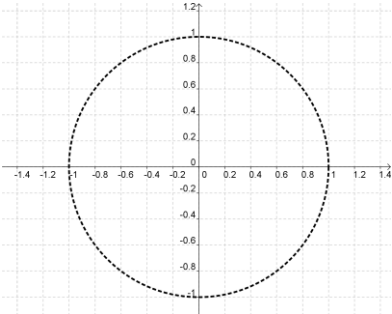


Analytical approach

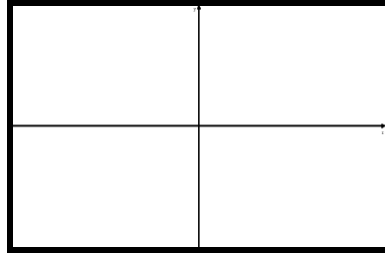
**(H) Solving Linear Trigonometric Equations – Quadrantal Angles – Example #1**

Solve the equation  $\sin(\theta) = 1$  for  $-180^\circ \leq \theta \leq 360^\circ$

Triangle/unit circle visual approach



Graphic approach



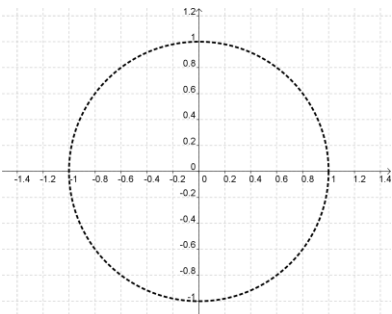
Analytical approach

Alternate “forms” of the equation:

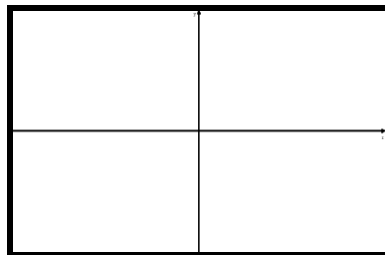
**(I) Solving Linear Trigonometric Equations – Quadrantal Angles – Example #2**

Solve the equation  $\cos(\theta) = -1$  for  $-360^\circ \leq \theta \leq 360^\circ$

Triangle/unit circle visual approach



Graphic approach



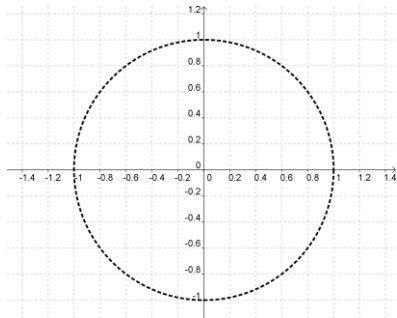
Analytical approach

Alternate “forms” of the equation:

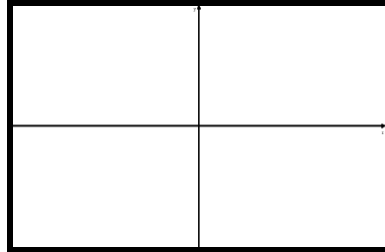
**(J) Solving Linear Trigonometric Equations – Any Angle – Example #1**

Solve the equation  $\sin(\theta) = -0.4325$  on the domain  $-180^\circ \leq \theta \leq 360^\circ$

Triangle/unit circle visual approach



Graphic approach



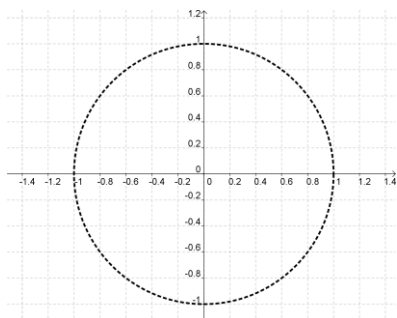
Analytical approach

Alternate “forms” of the equation:

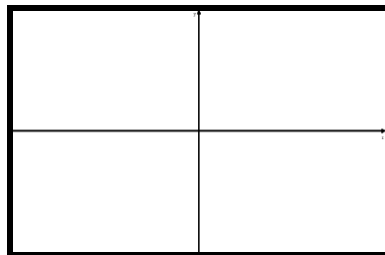
**(K) Solving Linear Trigonometric Equations – Special Angles – Example #2**

Solve the equation  $\cos(\theta) = \frac{3}{16}$  on the domain  $-270^\circ \leq \theta \leq 180^\circ$

Triangle/unit circle visual approach



Graphic approach



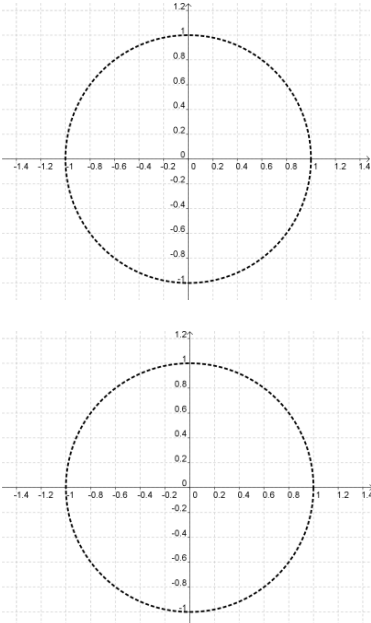
Analytical approach

Alternate “forms” of the equation:

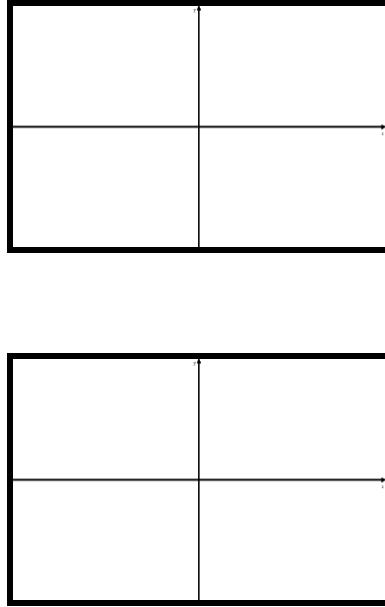
**(A) Solving Linear Trigonometric Equations – Combinations – Example #1**

Solve the equation  $(\sin\theta - 1)(2\cos\theta + 1) = 0$  on the domain  $-180^\circ \leq \theta \leq 360^\circ$

Triangle/unit circle visual approach



Graphic approach

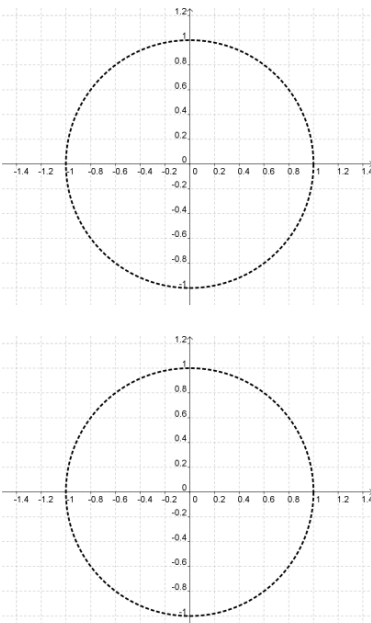


Analytical approach

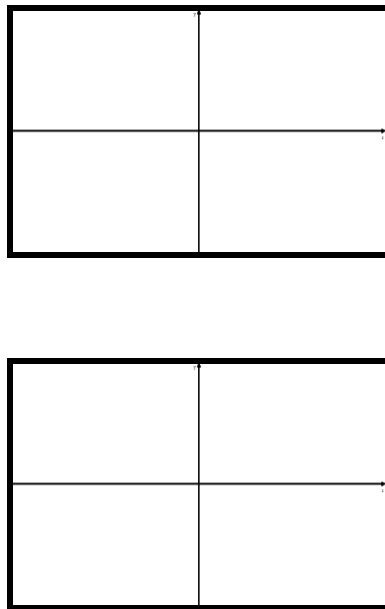
**(B) Solving Linear Trigonometric Equations – Combinations – Example #2**

Solve the equation  $(\tan\theta)(\sqrt{3}\sin\theta - 2) = 0$  on the domain  $-180^\circ \leq \theta \leq 360^\circ$

Triangle/unit circle visual approach



Graphic approach



Analytical approach