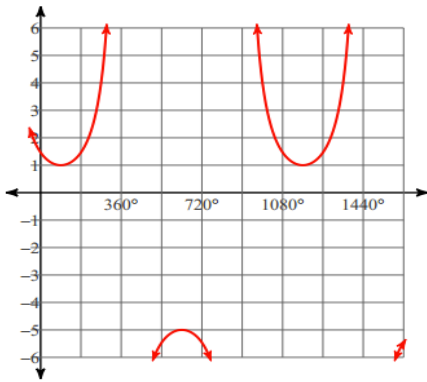
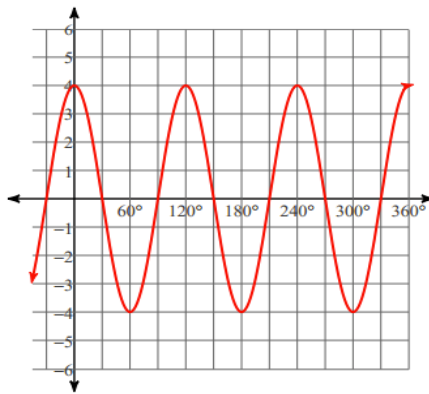




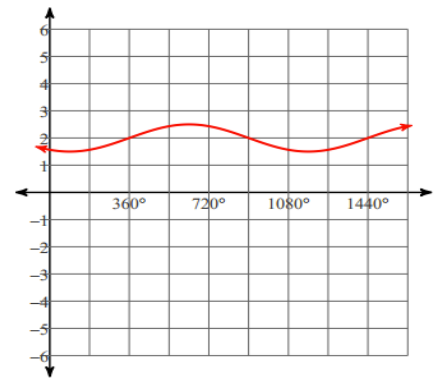
$$y = 3\sec\left(\frac{x}{3} + 330\right) - 2$$



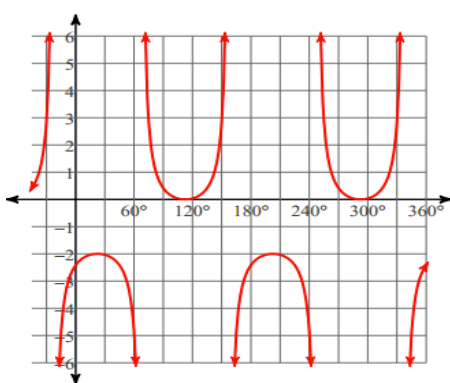
$$y = 4\cos 3x$$



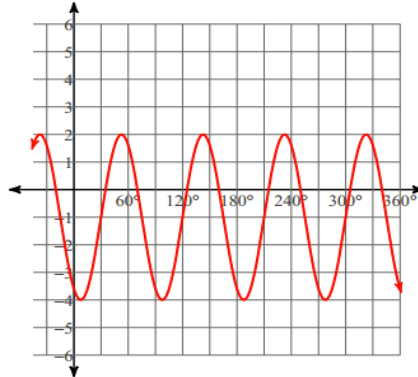
$$y = \frac{1}{2}\sin\left(\frac{x}{3} - 120\right) + 2$$



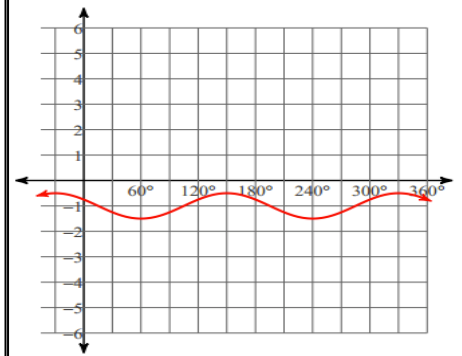
$$y = \sec(2x + 135) - 1$$



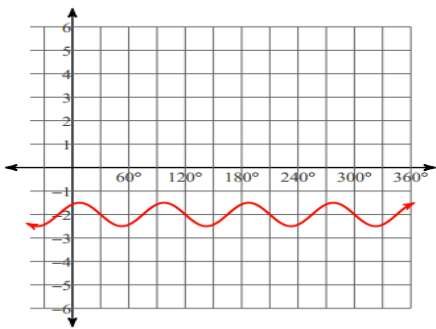
$$y = 3\sin(4x - 120) - 1$$



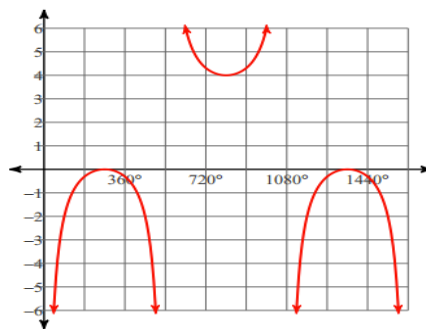
$$y = \frac{1}{2}\sin(2x - 150) - 1$$



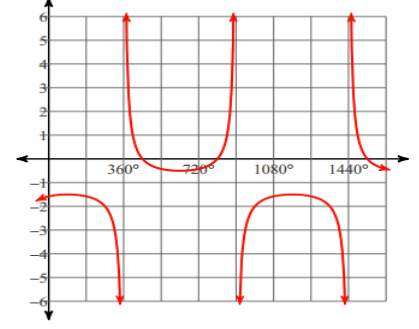
$$y = \frac{1}{2}\sin(4x - 300) - 2$$



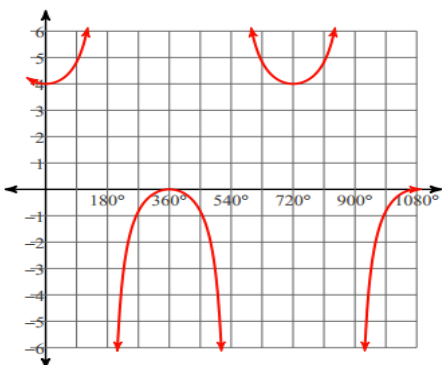
$$y = 2\sec\left(\frac{x}{3} - 270\right) + 2$$



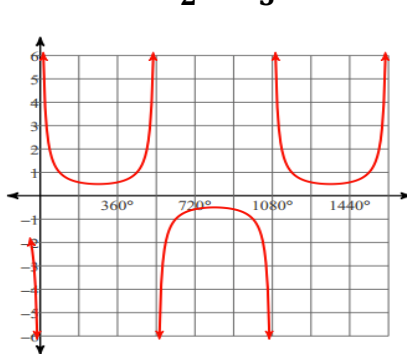
$$y = \frac{1}{2}\sec\left(\frac{x}{3} + 150\right) - 1$$



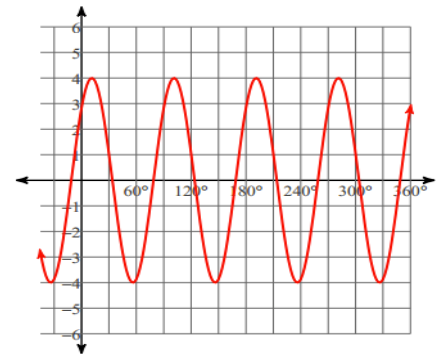
$$y = 2\csc\left(\frac{x}{2} + 90\right) + 2$$



$$y = \frac{1}{2}\csc\left(\frac{x}{3}\right)$$

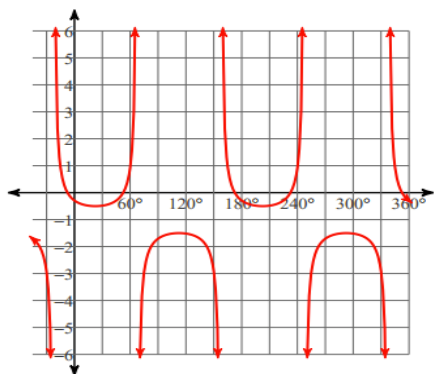


$$y = 4\cos(4x + 315)$$

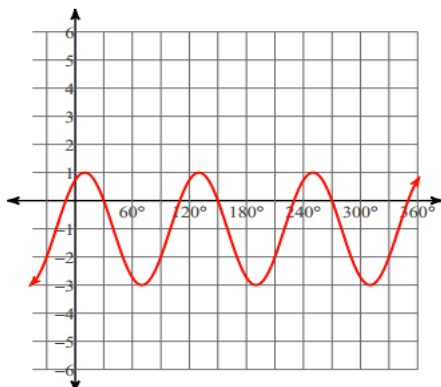




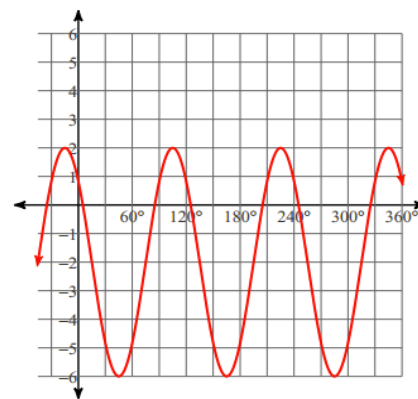
$$y = \frac{1}{2} \csc(2x + 45) - 1$$



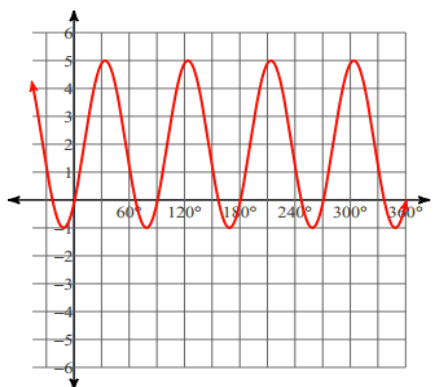
$$y = 2 \cos(3x - 30) - 1$$



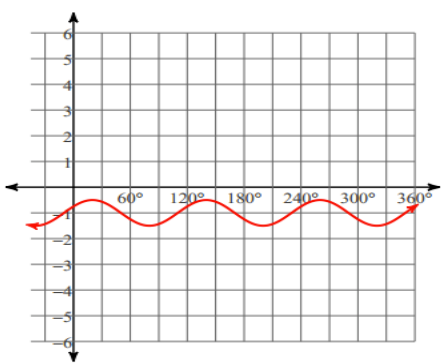
$$y = 4 \sin(3x + 135) - 2$$



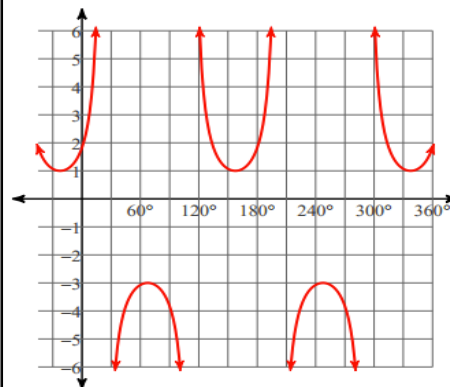
$$y = 3 \sin(4x - 45) + 2$$



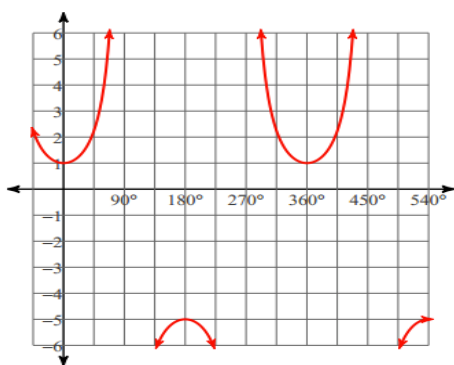
$$y = \frac{1}{2} \cos(3x - 60) - 1$$



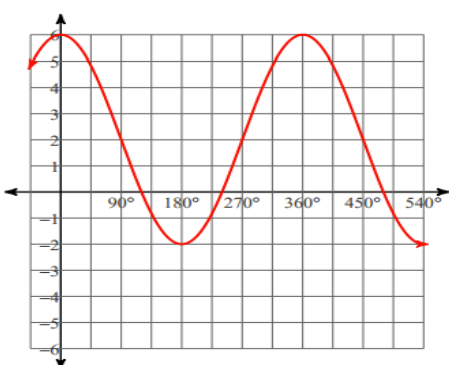
$$y = 2 \csc(2x + 135) - 1$$



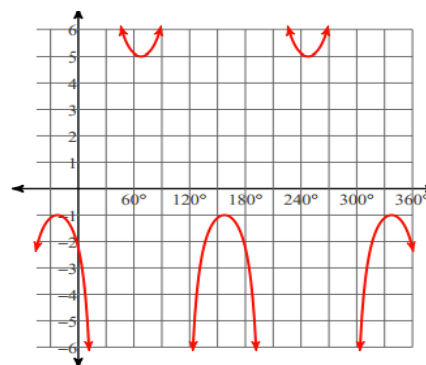
$$y = 3 \sec x - 2$$



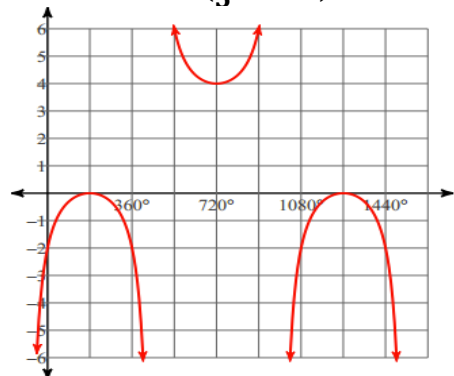
$$y = 4 \cos x + 2$$



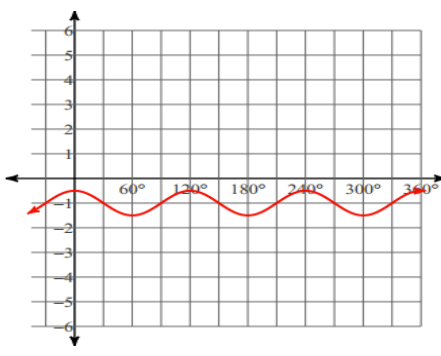
$$y = 3 \csc(2x - 45) + 2$$



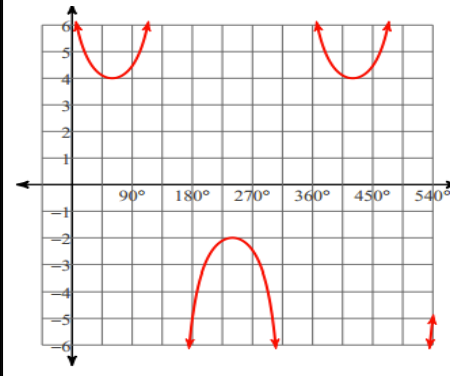
$$y = 2 \sec\left(\frac{x}{3} + 120\right) + 2$$



$$y = \frac{1}{2} \cos 3x - 1$$



$$y = 3 \csc(x - 330) + 1$$



## NOTES

The idea behind this game is for pupils to become (more) familiar/comfortable with the different ways of transforming trigonometric curves and the implications these transformations have on trigonometric properties e.g. periodicity, parity, etc.

As there isn't a station on which to place the cards, I simply get pupils to place a book standing up on the middle of the desk so players cannot cheat

Here are a few prompts that could be used to scaffold the activity, where the deck of prompt cards are placed on the table face down and one card is chosen from the top and read to the opponent.

I would discourage pupils asking questions such as "is your function sine, cosine, tangent etc" as this eliminates too many possibilities too quickly and defeats the purpose of the exercise.

**Do you have a  
reciprocal  
function?**

**Is the period of  
your function  
 $360^\circ$ ?**

**Is the period of  
your function  
 $180^\circ$ ?**

**Has your  
function been  
stretched?**

**Has your  
function been  
shifted  
vertically?**

**At  $x = 0$ , does  
your function  
yield the value  
 $0$ ?**

**Does your  
function have  
asymptotes?**

**Is the function  
even?**

**Is the function  
odd?**