

<https://www.desmos.com/calculator/r1vk7mkewl>

HW Questions
?

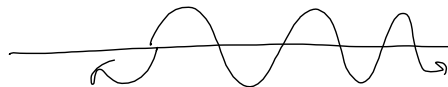
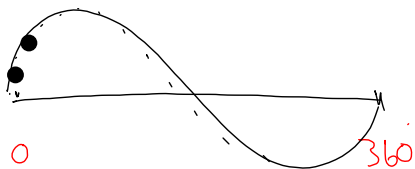
there is no warm up today

HW
Q

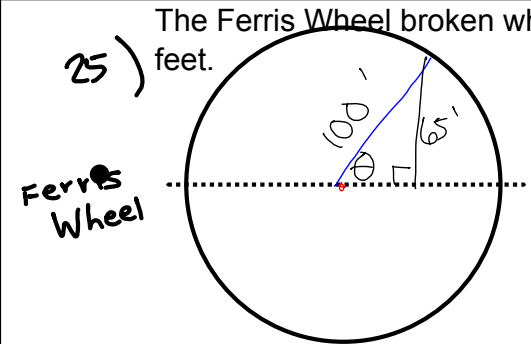
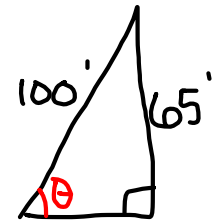
24

domain of $y = \sin \theta$

depends on if the Ferris Wheel is part of
the thinking



25) The Ferris Wheel broken when the height was 65 feet.

$$\sin \theta = \frac{65}{100}$$

$$\theta = \sin^{-1}\left(\frac{65}{100}\right)$$

$$=$$

(27)

$$\left(\frac{13^{12}}{14^{23}}\right) \left(\frac{27^3}{13^{11}}\right) \left(\frac{2^{10}}{27^4}\right) \left(\frac{14^{22}}{13}\right) \left(\frac{27}{2^9}\right)$$

$$\frac{\cancel{13}^{12} \cdot \cancel{27}^3 \cdot \cancel{27}^1 \cdot 2^{10} \cdot \cancel{14}^{22}}{\cancel{13}^{11} \cdot \cancel{13}^1 \cdot \cancel{27}^4 \cdot \cancel{27}^1 \cdot \cancel{2}^9 \cdot \cancel{14}^{23}}$$

$$\frac{2}{14} = \frac{1}{7}$$

(28) Graph the system

$$x - y \geq 3x - 2y - 4$$
$$y < 2x^2 + 1$$

(26)

$$y = 3x^2 - 24x + 55$$

$$y = 3(x^2 - 8x) + 55$$

$$y = 3(x^2 - 8x + 16) + 55 - 16$$

$$y = 3(x - 4)^2 + 39$$

↑ mistake

(30)

$$y + 3 = 8x^2 - 10x$$

y-intercept

(0, •)

$$y + 3 = 0$$

$$y = -3$$

x-intercept

(, 0)

$$3 = 8x^2 - 10x$$

$$0 = 8x^2 - 10x - 3$$

(32)

Mary has an antique marble collection containing 40 marbles.

She has five more red marbles than blue

$$r = b + 5 \quad b = r - 5$$

twice as many red as green marbles.

$$g = \frac{1}{2}r \quad r = 2g$$

$$r + b + g = 40$$

$$r = b + 5$$

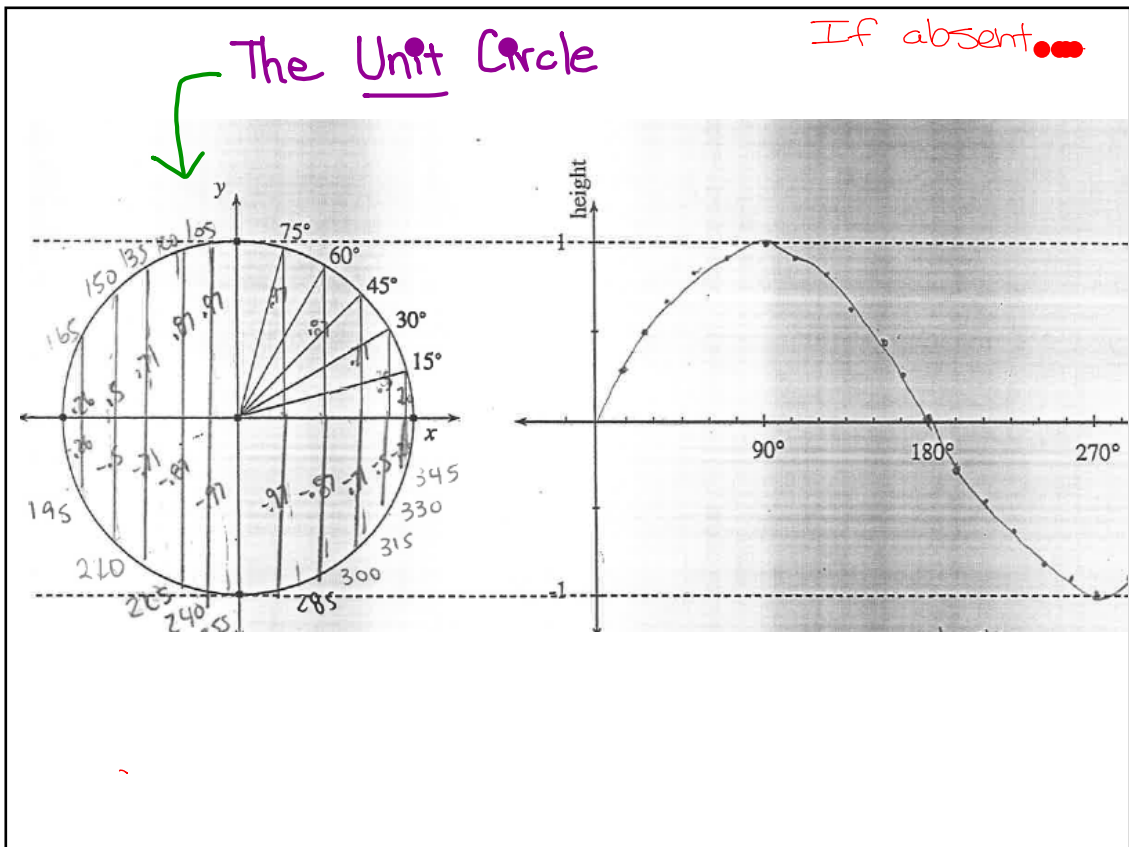
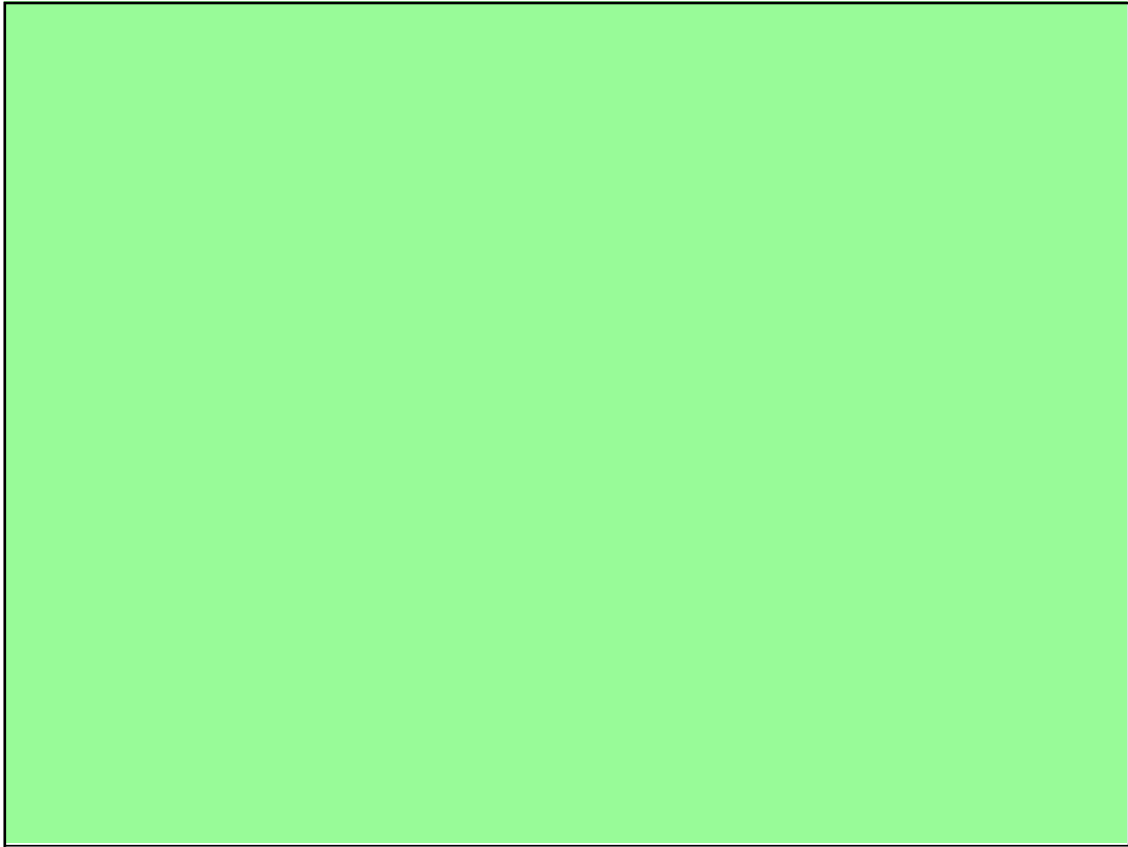
$$b = r - 5$$

$$r = 2g$$

$$g = \frac{r}{2}$$

$$r + r - 5 + \frac{r}{2} = 40$$

$$r =$$



Zero

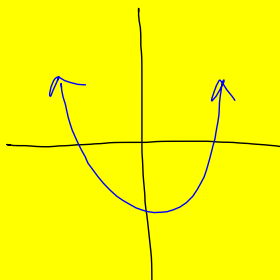
5

Find the zeros (x-intercepts)

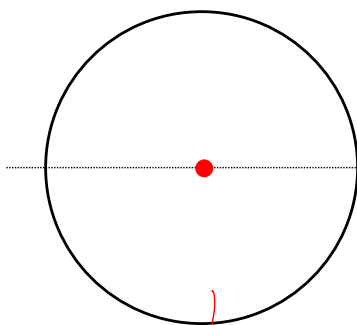
of $y = \sin x$

$$f(x) = x^2 - 4$$

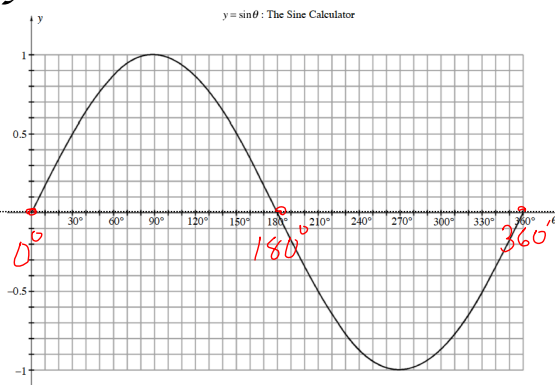
$$x = 2 \quad x = -2$$



yesterday's warm up



$$y = \sin(\theta)$$



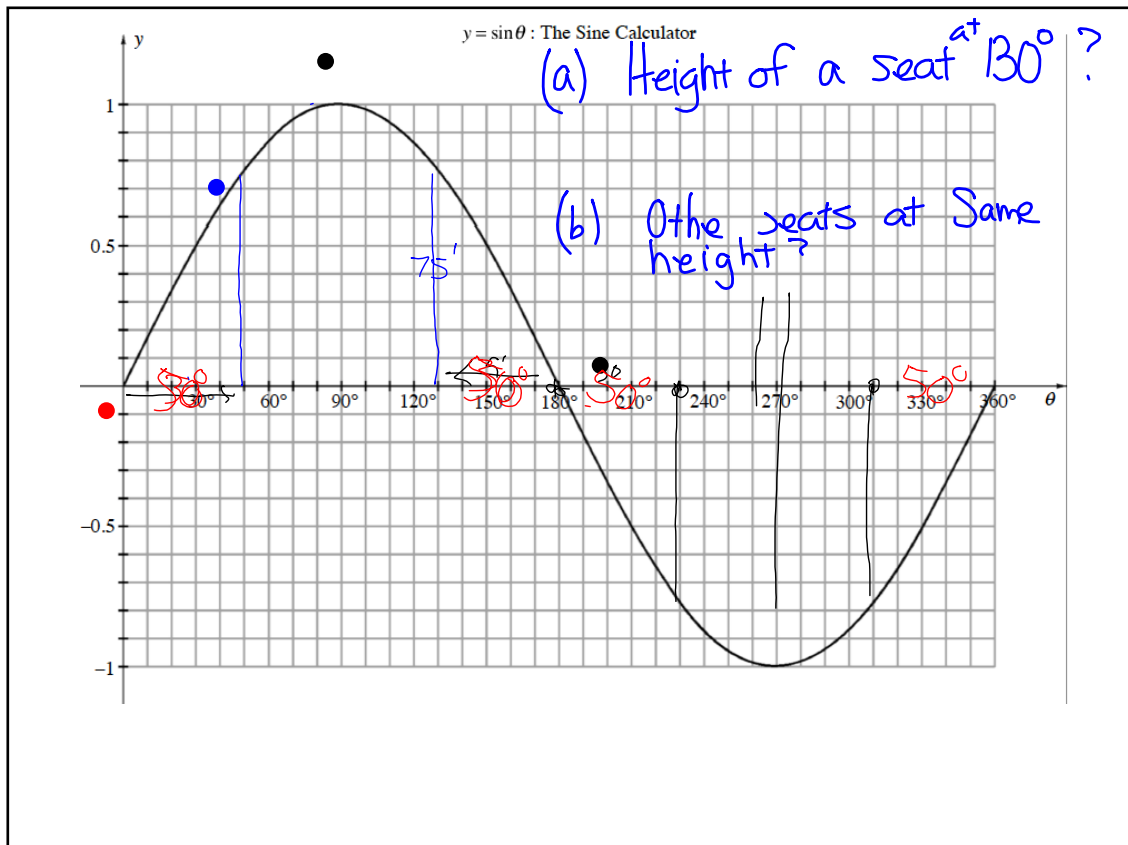
Goal

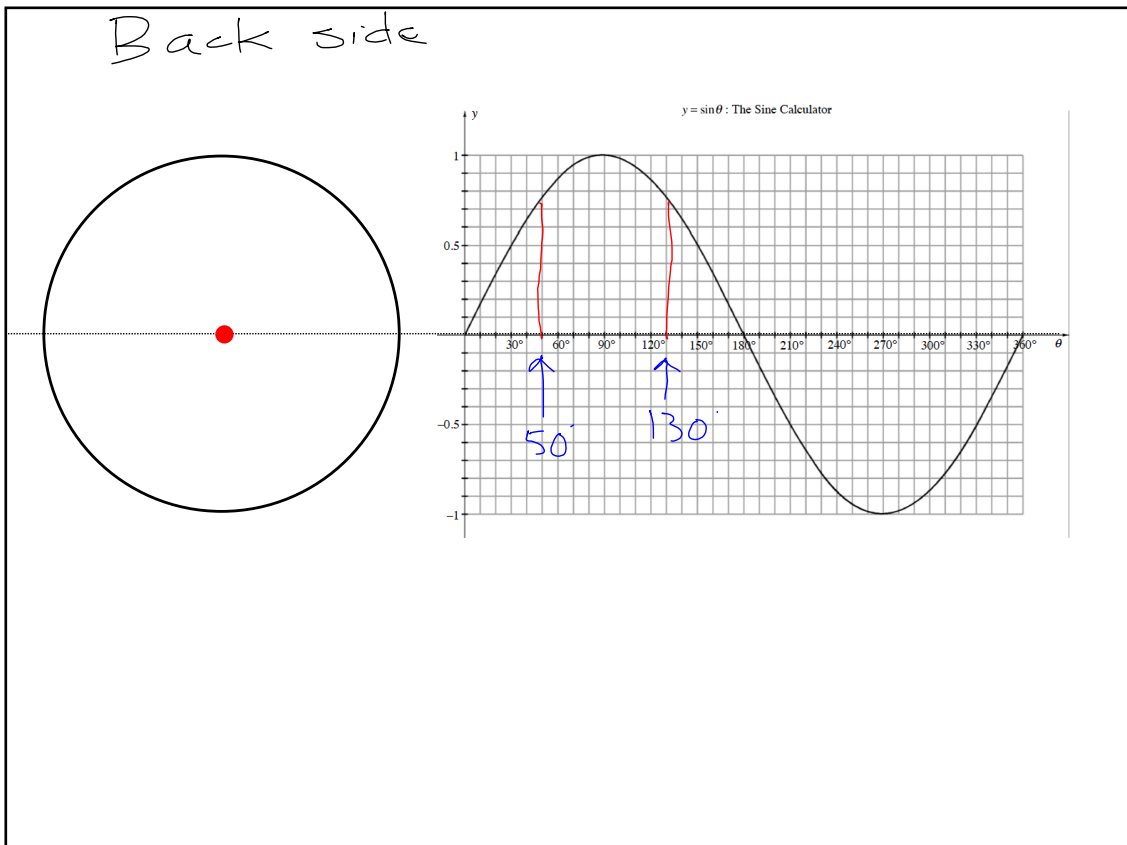
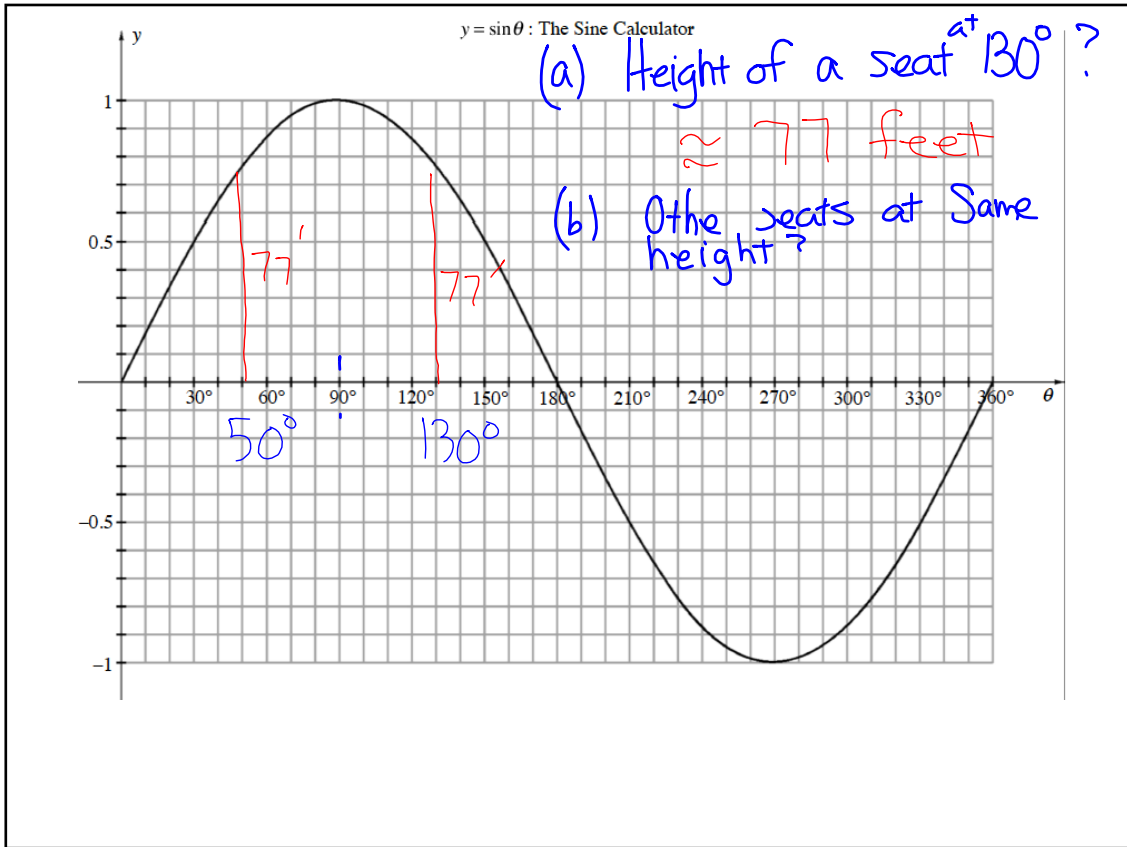


Determine a **reference angle**.

7-34 abc

on the worksheet
Classwork II





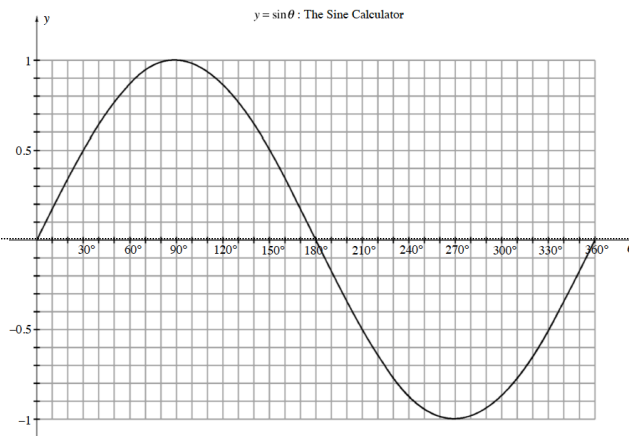
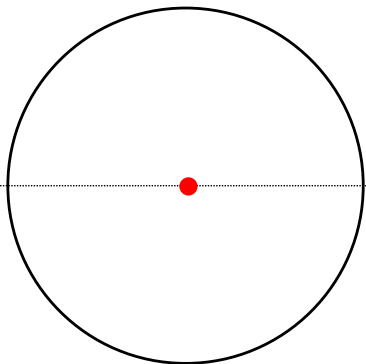
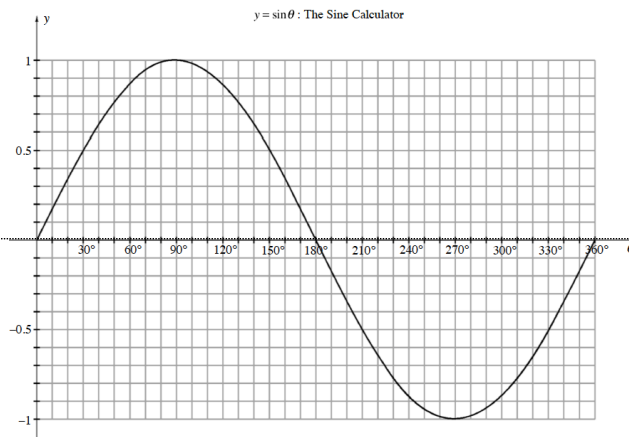
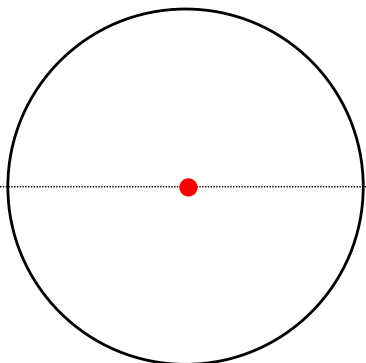
(c) How can symmetry help?

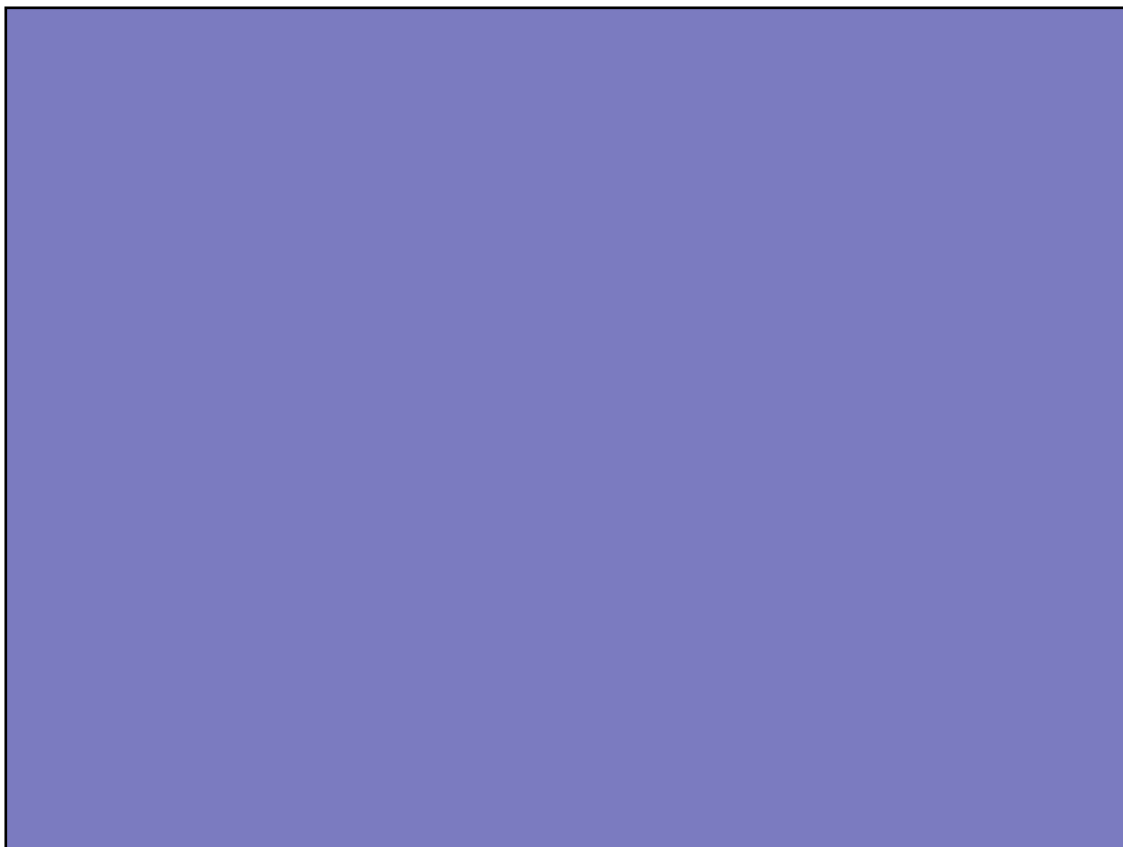
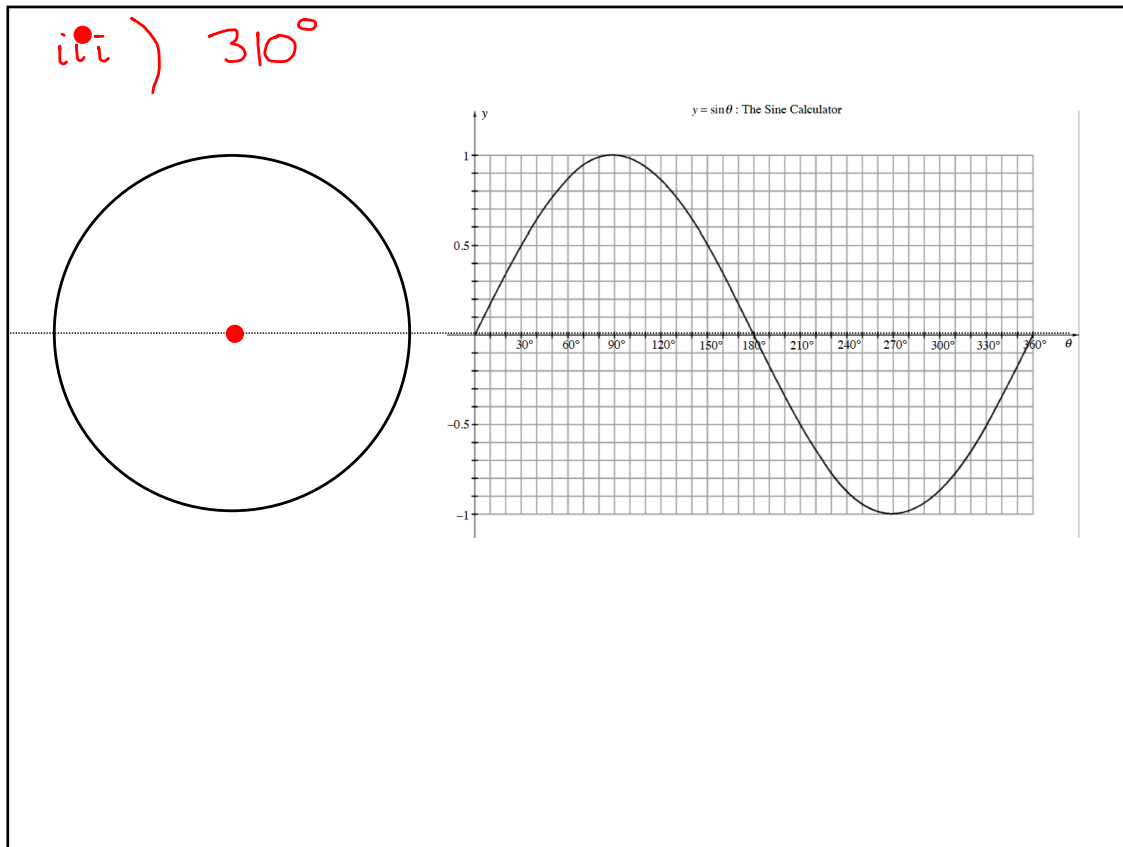
The graph is symmetrical
around two vertical lines

$$\theta = 90^\circ \quad \text{and} \quad \theta = 270^\circ$$

now part d

3 people/pairs will be
selected to illustrate.

i) 80° ii) 200° 

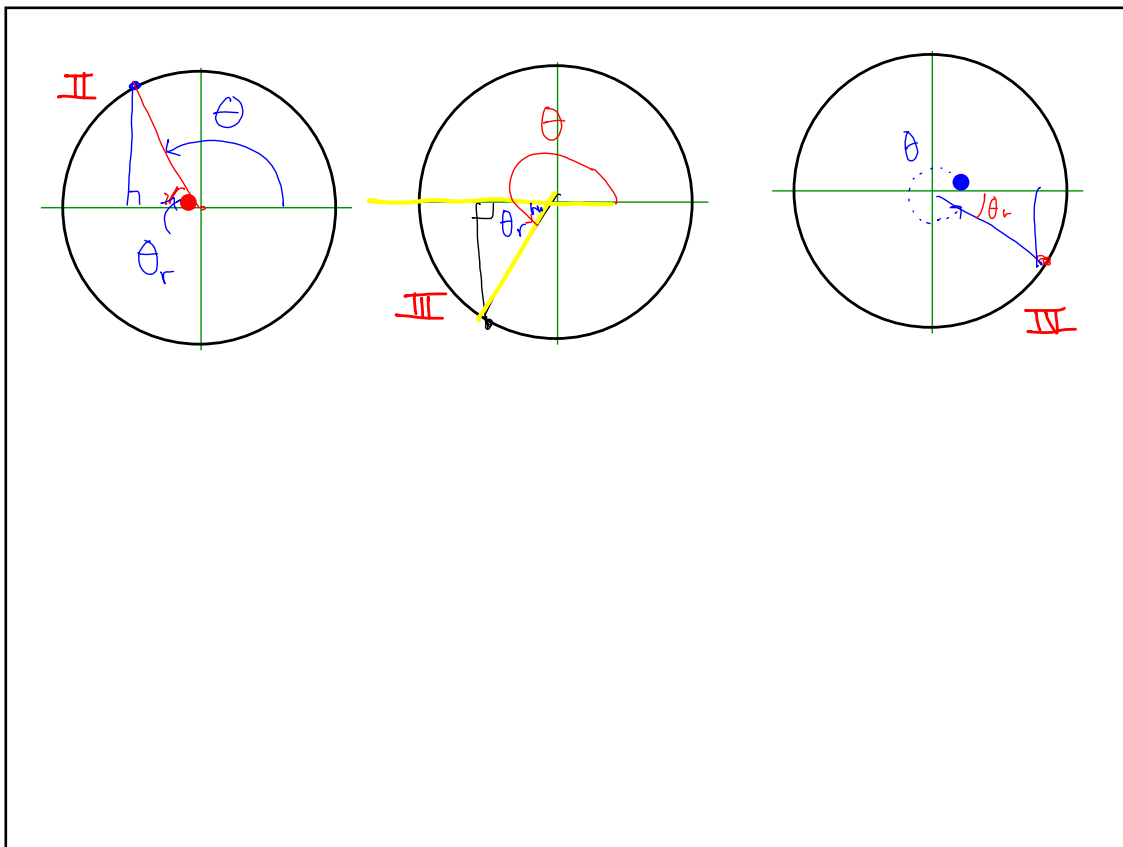
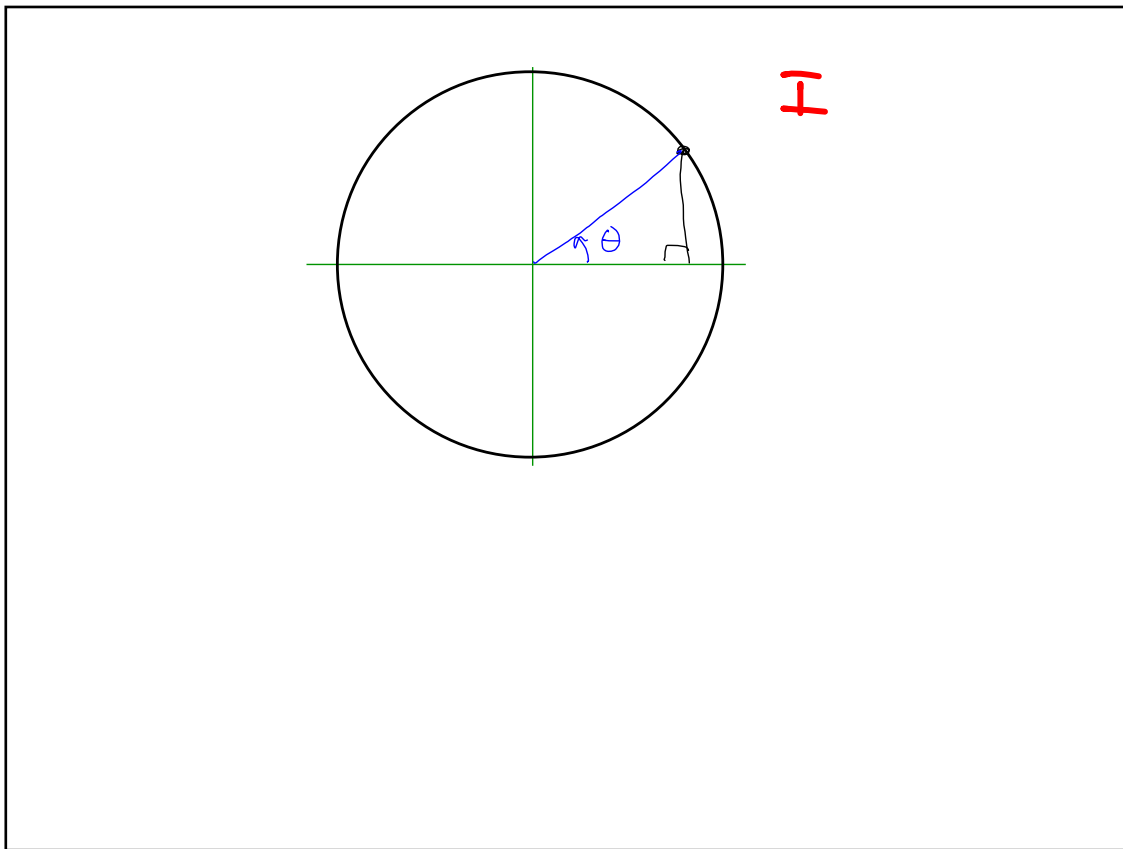


Notes: Reference Angles

Every **point** on the Unit Circle is linked with one reference angle which is....
 an angle formed between the radius drawn from the origin to that **point** and
the horizontal axis.



1. On circle I
2. Pretend you were a rider that got stuck on the Ferris Wheel. Mark a random point on the circle in the first quadrant to show where you got stuck.
3. Draw the height (to show how far you would climb down to get off.
4. Draw the triangle (with an rotation angle from $\overset{\circ}{\circ}$)

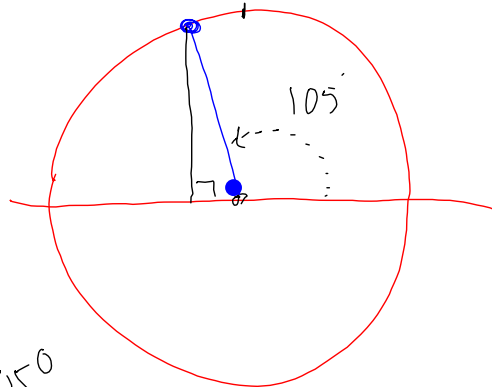


On the back side of your paper .

Determine the size
of a reference
angle for a
rotation of

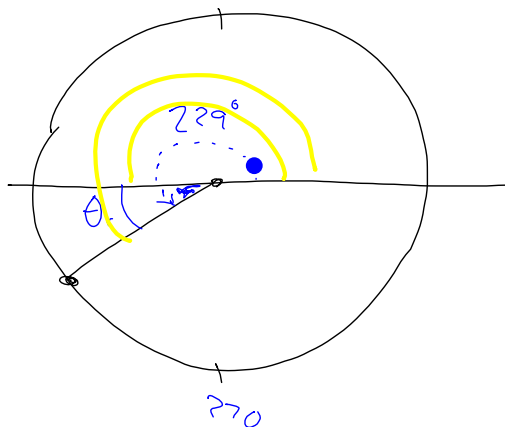
$$\theta = 105^\circ$$

$$\theta_r = 180^\circ - 105^\circ = 75^\circ$$



$$\theta = 229^\circ$$

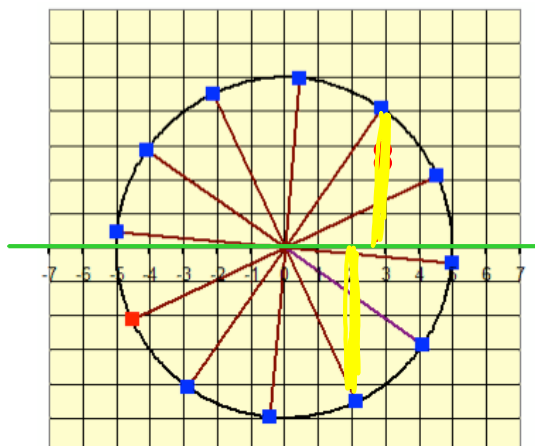
$$\theta_r = \frac{229 - 180}{49^\circ}$$



Consider leaving space in your notes to tape the bottom half of this sheet into your notes.

The Ferris Wheel

- Riders were stuck all over, at various heights, both positive and negative heights.

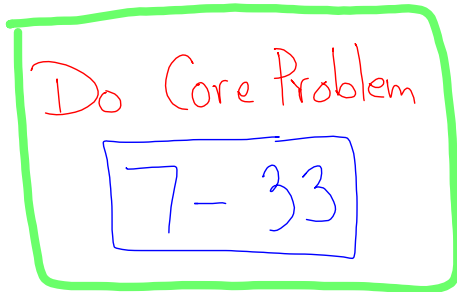
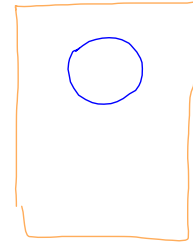


demo



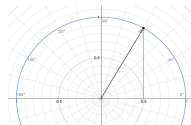
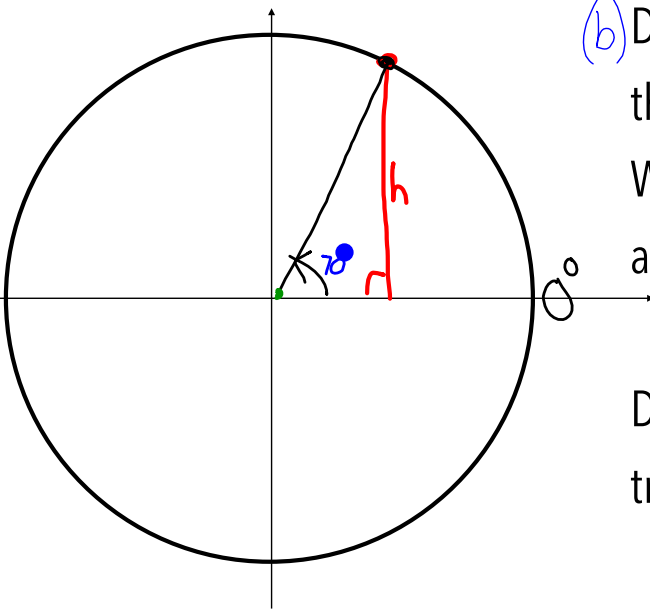
Add to your notes :

A decent size circle



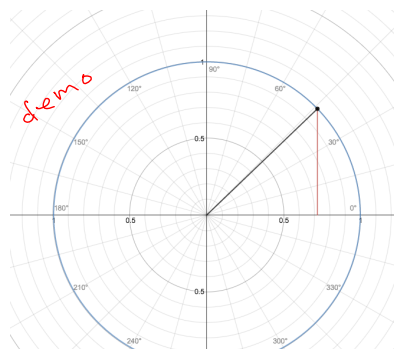
(b) Did any other riders have the exact same climb? What were the rotation angles to those points?

Draw the corresponding triangles

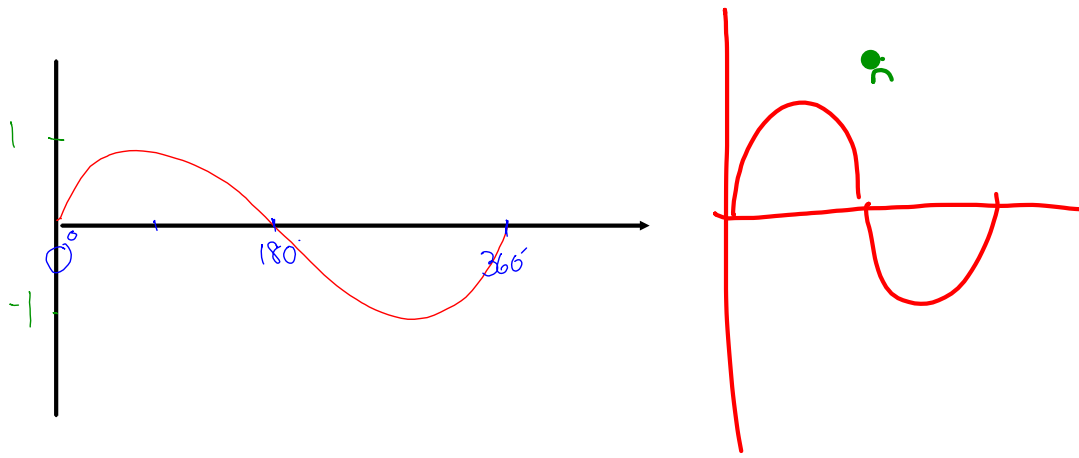


(c) What is the relationship between these four triangles?

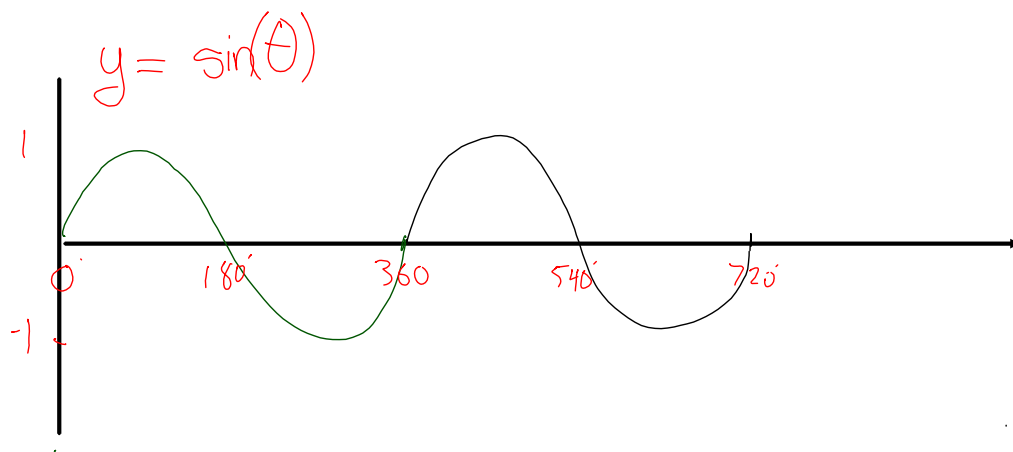
They all have the same size reference angle.



Sketch one cycle of the Screamer graph



Now on a separate grid sketch 2 cycles.



B.B.

Assignment :

1.....36-38, 40-41, 44

LCQ tomorrow on recent HW problems

