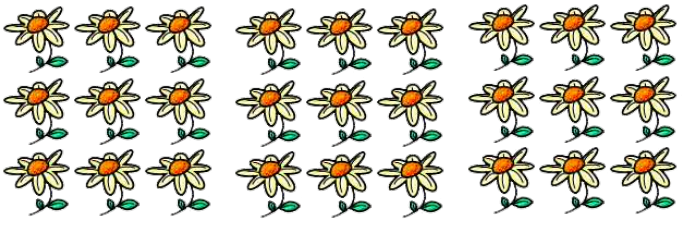
Pick up the Warm up

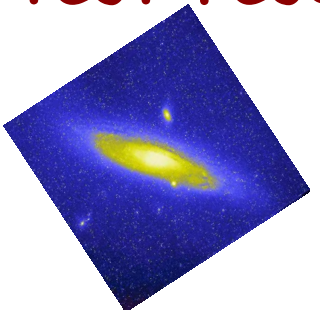
If you have not taken the Ch. 6 test,

take your warm up and do it out in the hallway.



Look at Ch. 6 test results

Correct homework



1) $28 = 7^{t+9} - 5$

$\log 33 = \log 7^{(t+9)}$

$\frac{\log 33}{\log 7} = (t+9)\cancel{\log 7}$

$t = \frac{\log 33}{\log 7} - 9$

$t \approx -7.408$

2) $\ln_e 8.5 = 2.14$

$e^{2.14} = 8.5$

3) $f(x) = 5x + 2$ $\quad g(x) = x^2 - 3$

$g(f(2)) =$ $\quad f(g(2)) =$

$f(2) = 5(2) + 2$

$f(2) = 12$

$g(12) = 12^2 - 3$

$= 141$

$g(2) = 2^2 - 3$

$g(2) = 1$

$f(1) = 5(1) + 2$

$f(g(2)) = 7$

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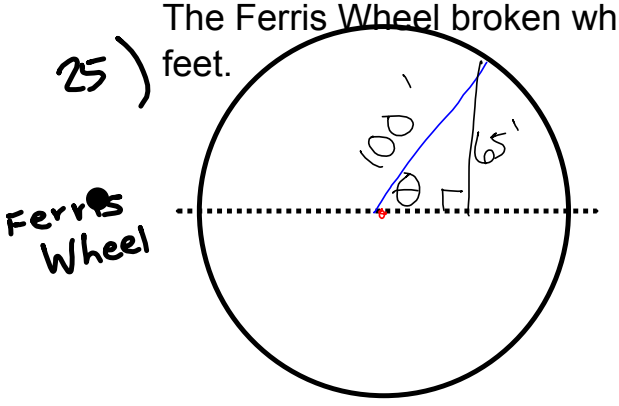
HW Questions ?

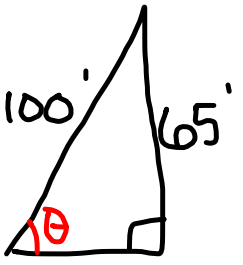
24

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.





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

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

$$\approx$$

(27)

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

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

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

(28) Graph the system $1+x-y \geq 3x-2y-4$

$y < 2x^2+1$

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,)

x-intercept

(, 0)

(32) Mary has an antique marble collection containing 40 marbles.

She has five more red marbles than blue

twice as many red as green marbles.

$r + b + g = 40$

$r = b + 5$

$b = r - 5$

$r = 2g$

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

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

$r =$

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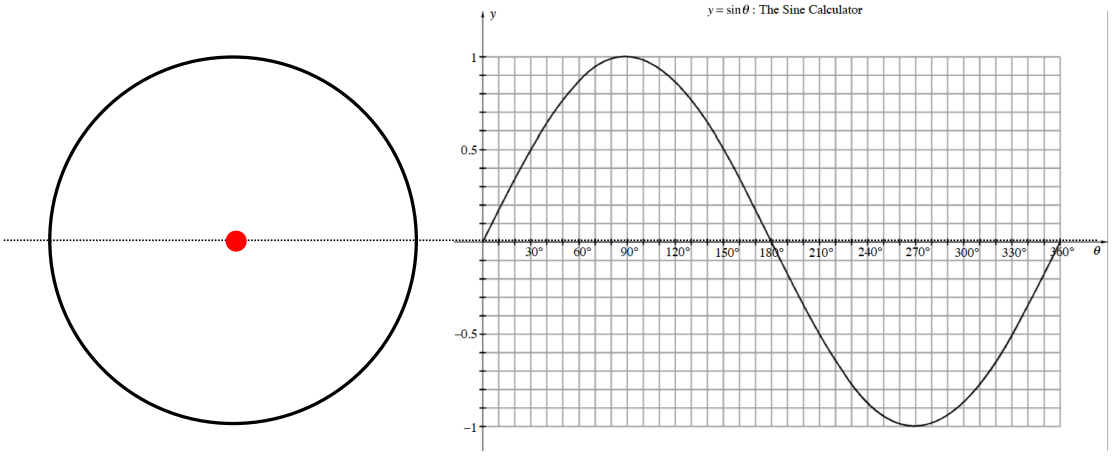
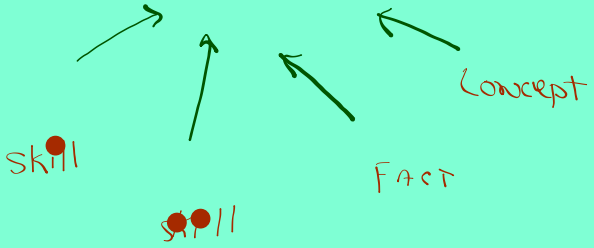

y = sin θ : The Sine Calculator
y
1
0.5
−0.5
−1
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°
360°
θ

Goal : Determine a reference angle.

① → ② → ③ → ④



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.

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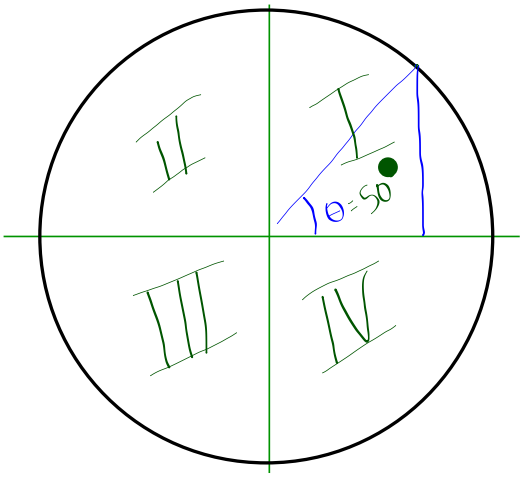

I

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 0°)

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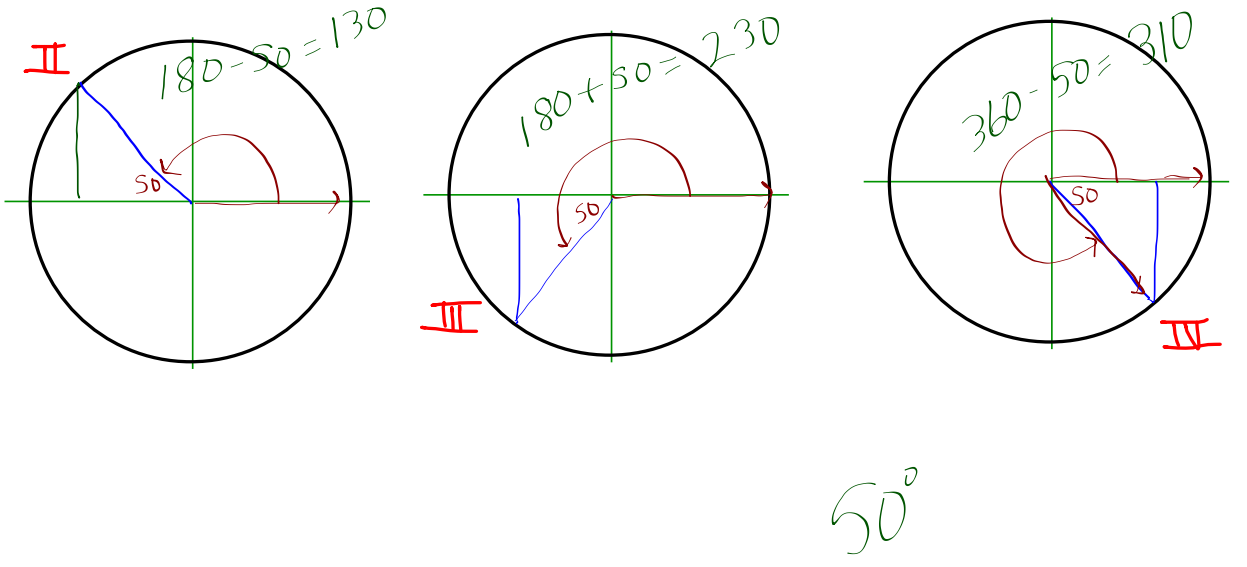
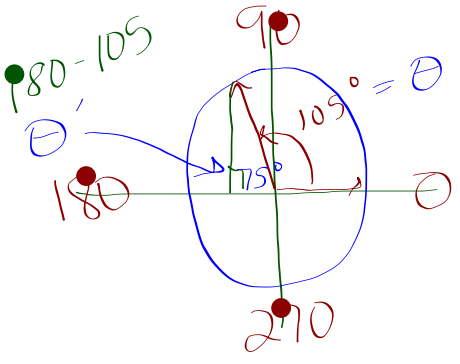


50°

NOTES

Determine the size of a reference angle for a rotation of

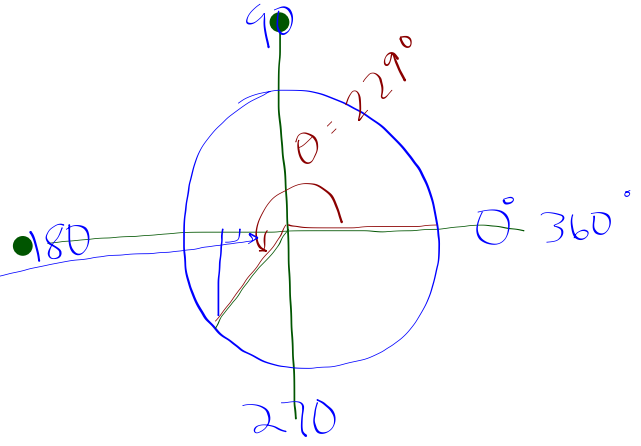
$\theta = 105^{\circ}$



$\theta = 229^\circ$

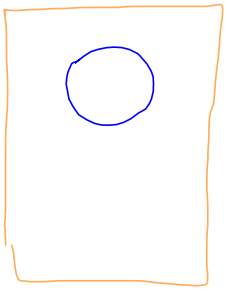
$\theta' = 229 - 180$

$\theta' = 49^\circ$



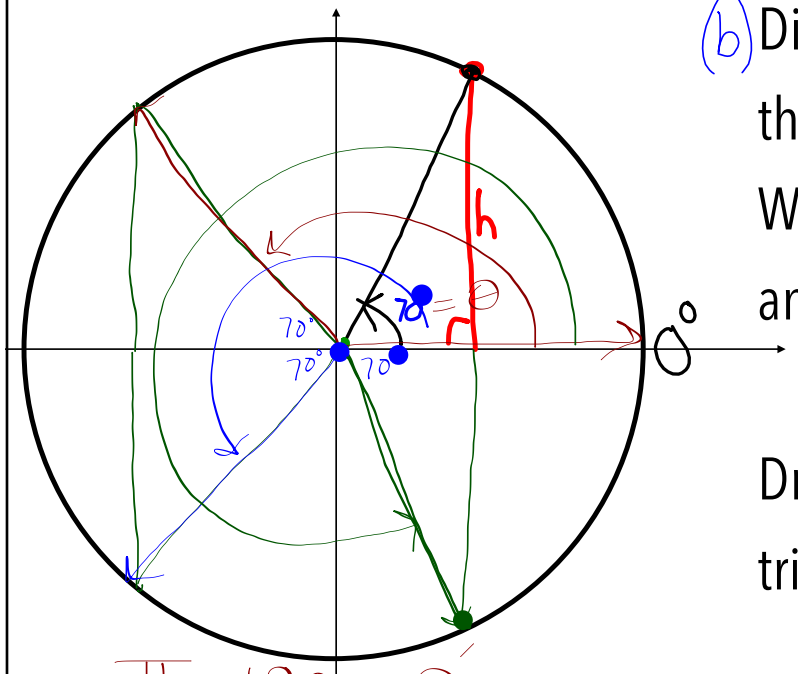
Add to your notes:

A decent size circle



Do Core Problem

7 - 33



II $180 - \theta'$

III $180 + \theta'$

IV $360 - \theta'$

(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.

on the worksheet

(half sheet - tan)

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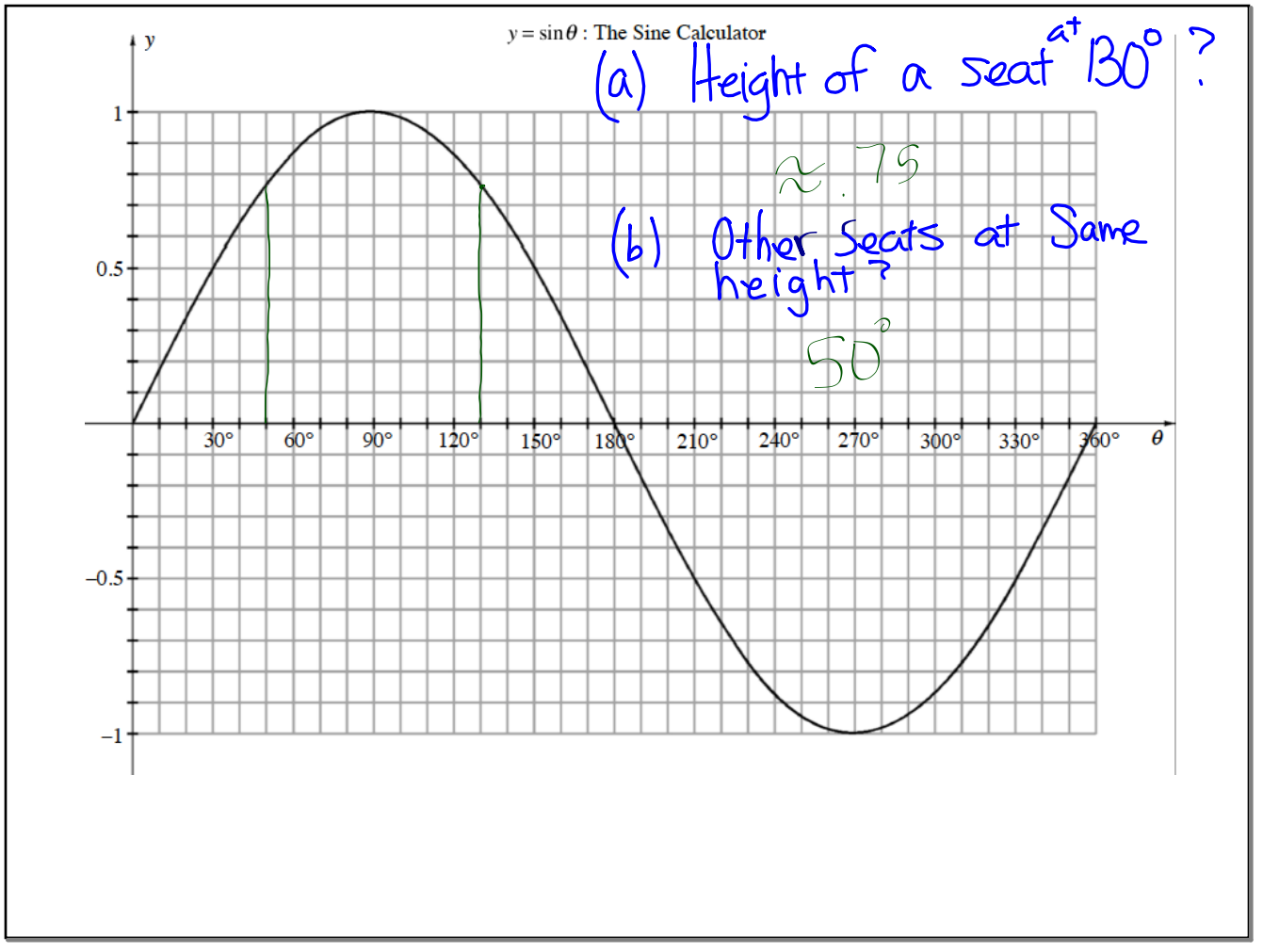
y = sin θ : The Sine Calculator
y
1
0.5
−0.5
−1
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°
360°
θ
(a) Height of a seat at 130°?
≈ .75
(b) Other seats at Same height?
50°

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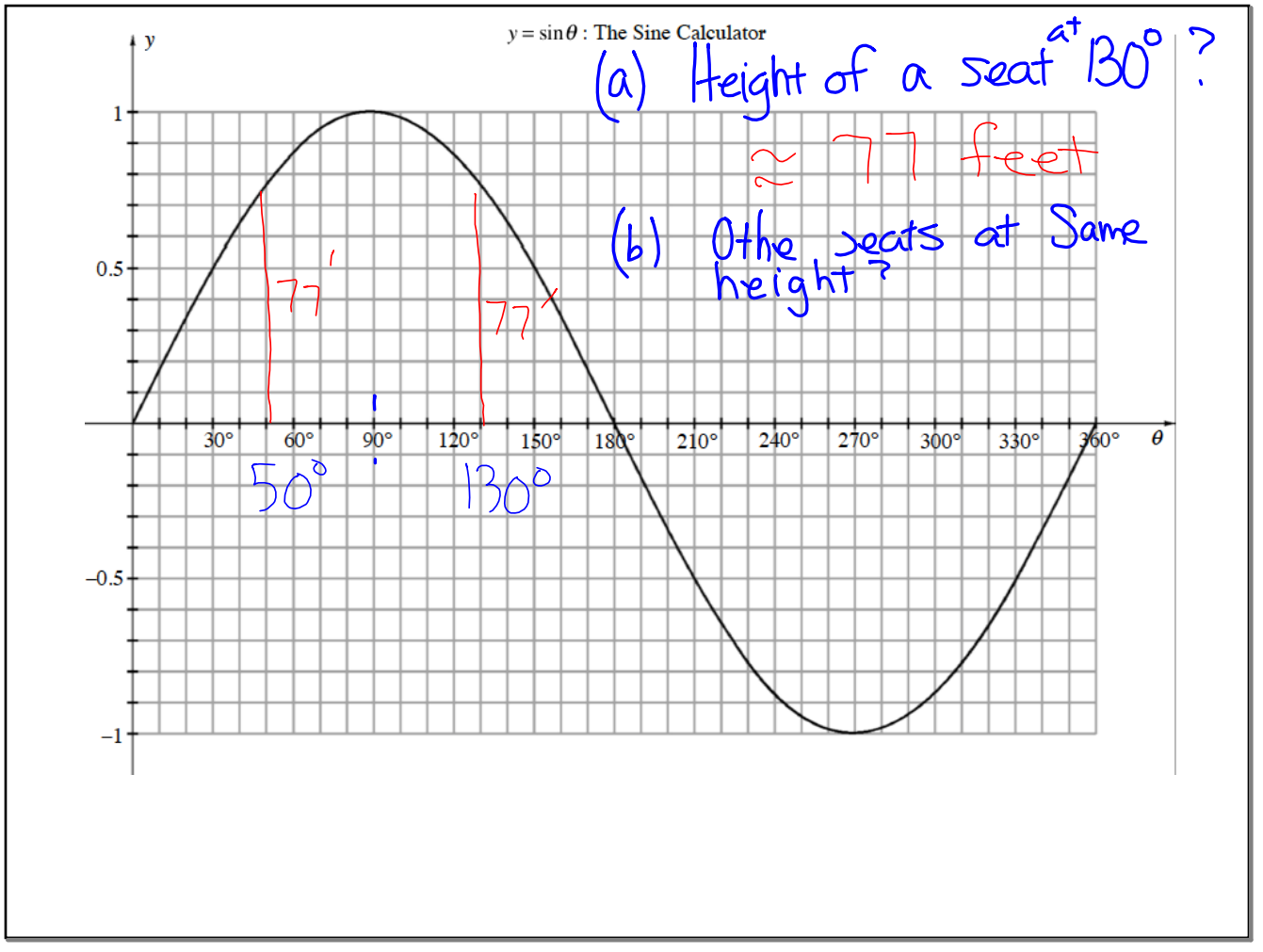
y = sin θ : The Sine Calculator
y
1
0.5
−0.5
−1
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°
360°
θ
77'
77'
50°
130°
(a) Height of a seat at 130°?
≈ 77 feet
(b) Other seats at Same height?

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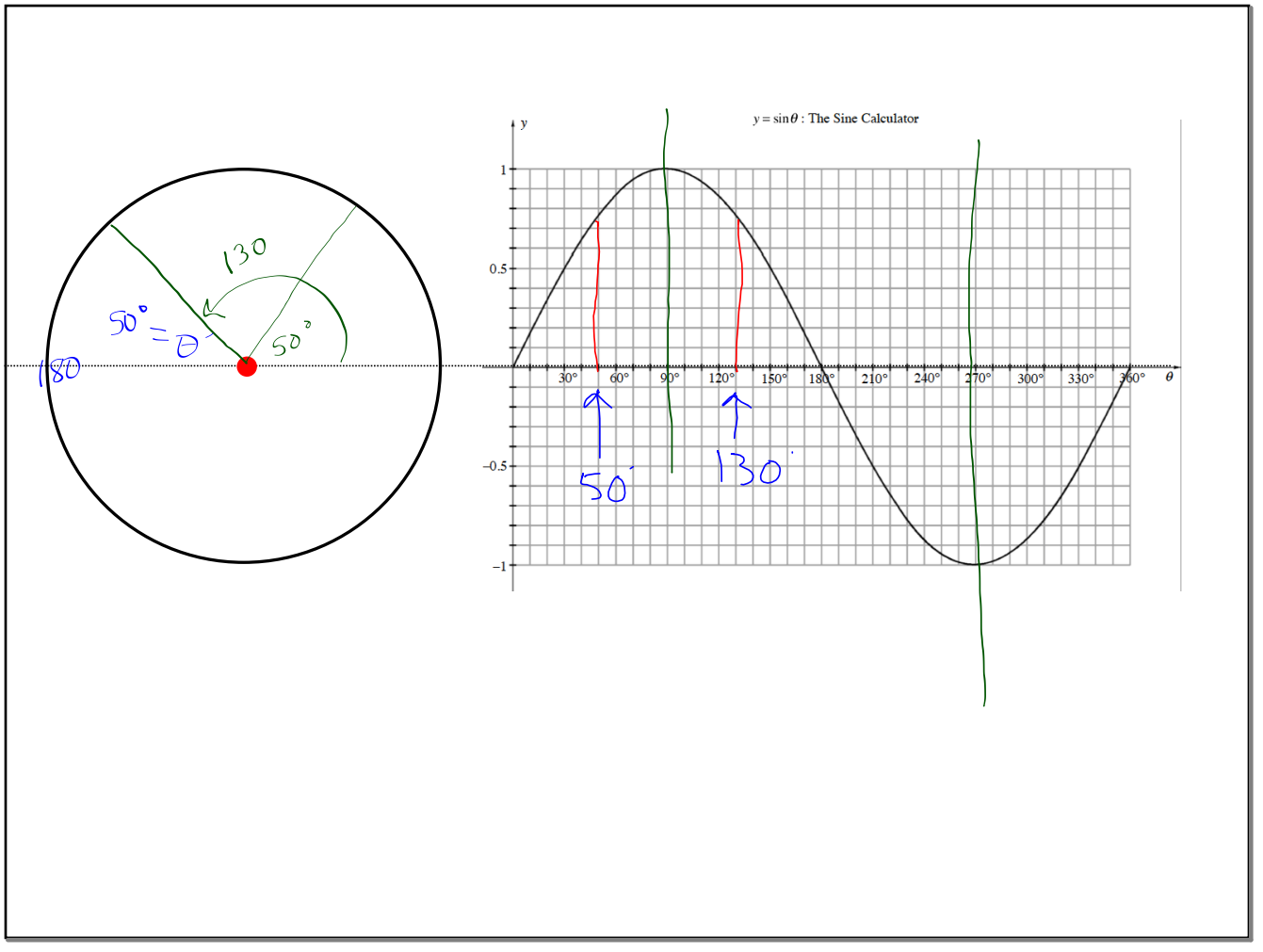
130
50°
50°
180
y = sin θ : The Sine Calculator
y
1
0.5
−0.5
−1
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°
360°
θ
50
130

How can symmetry help?

The graph is symmetrical around two vertical lines

$\theta = 90^\circ$ and $\theta = 270^\circ$

Using the same graph

Find a second angle that produces the same height as the angle

a) 80°

b) 200°

c) 310°

3 people/pairs will be selected to illustrate.

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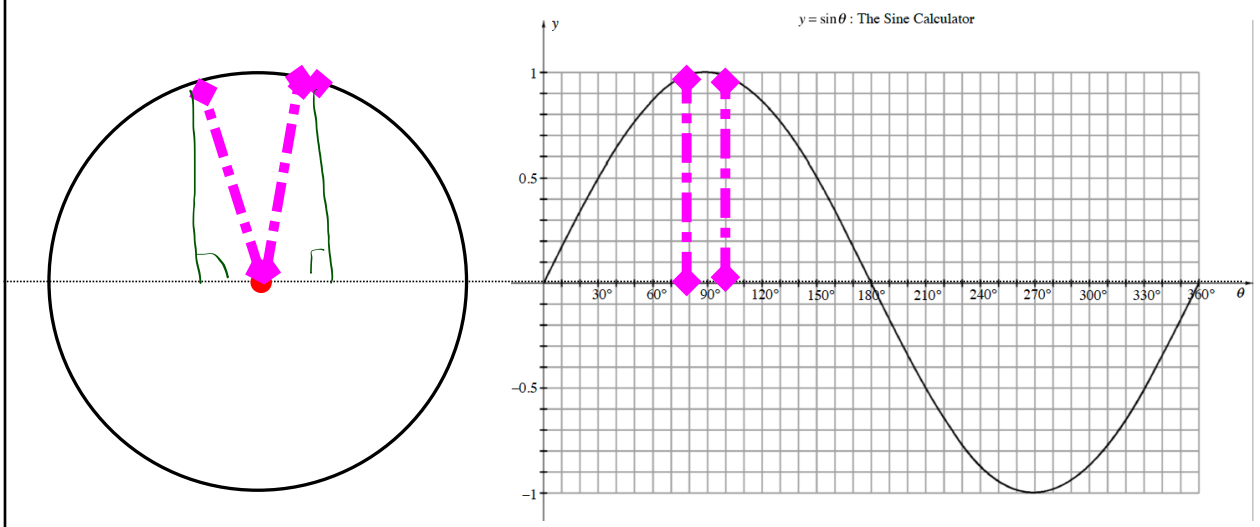
a) 90°



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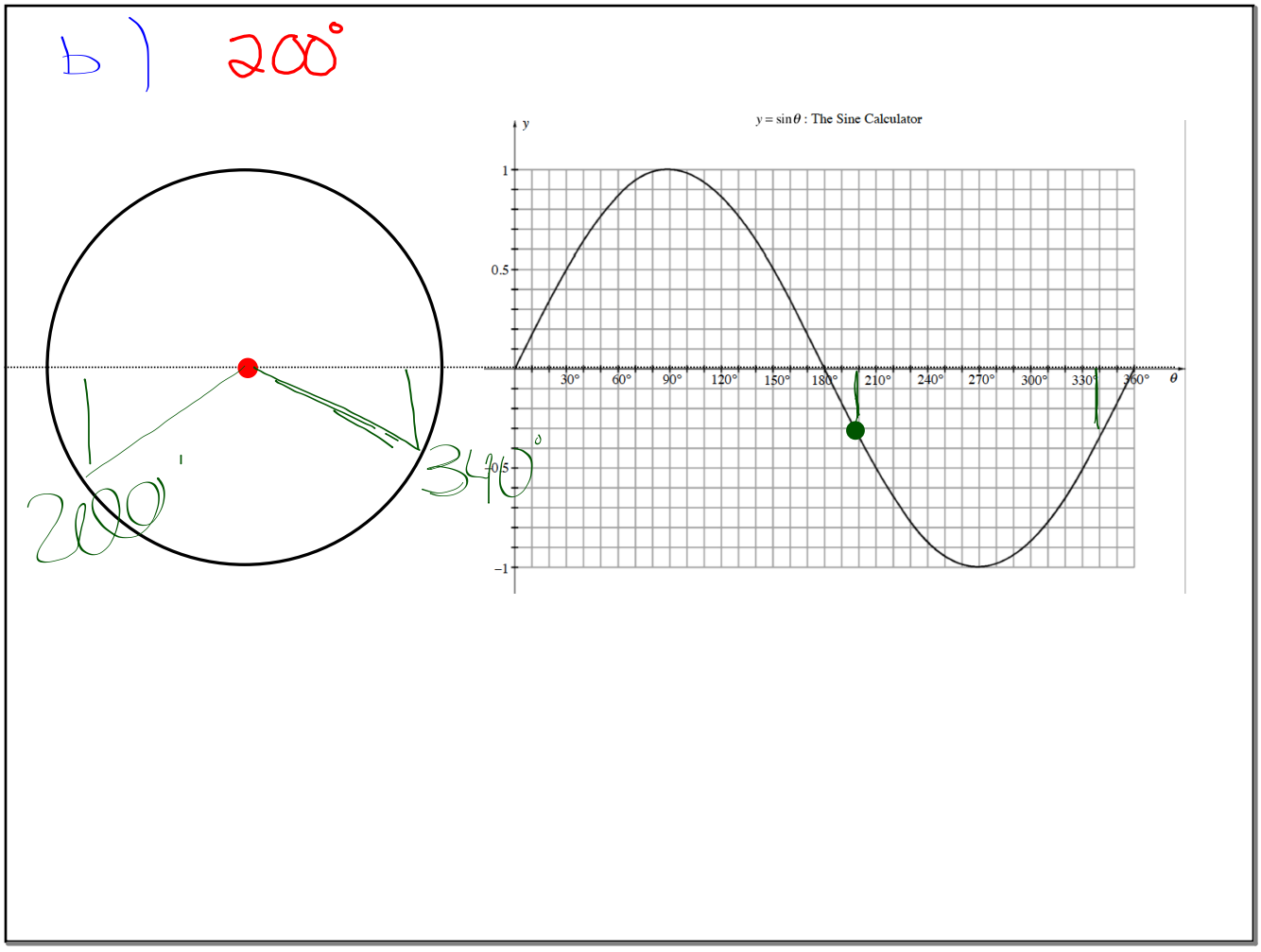
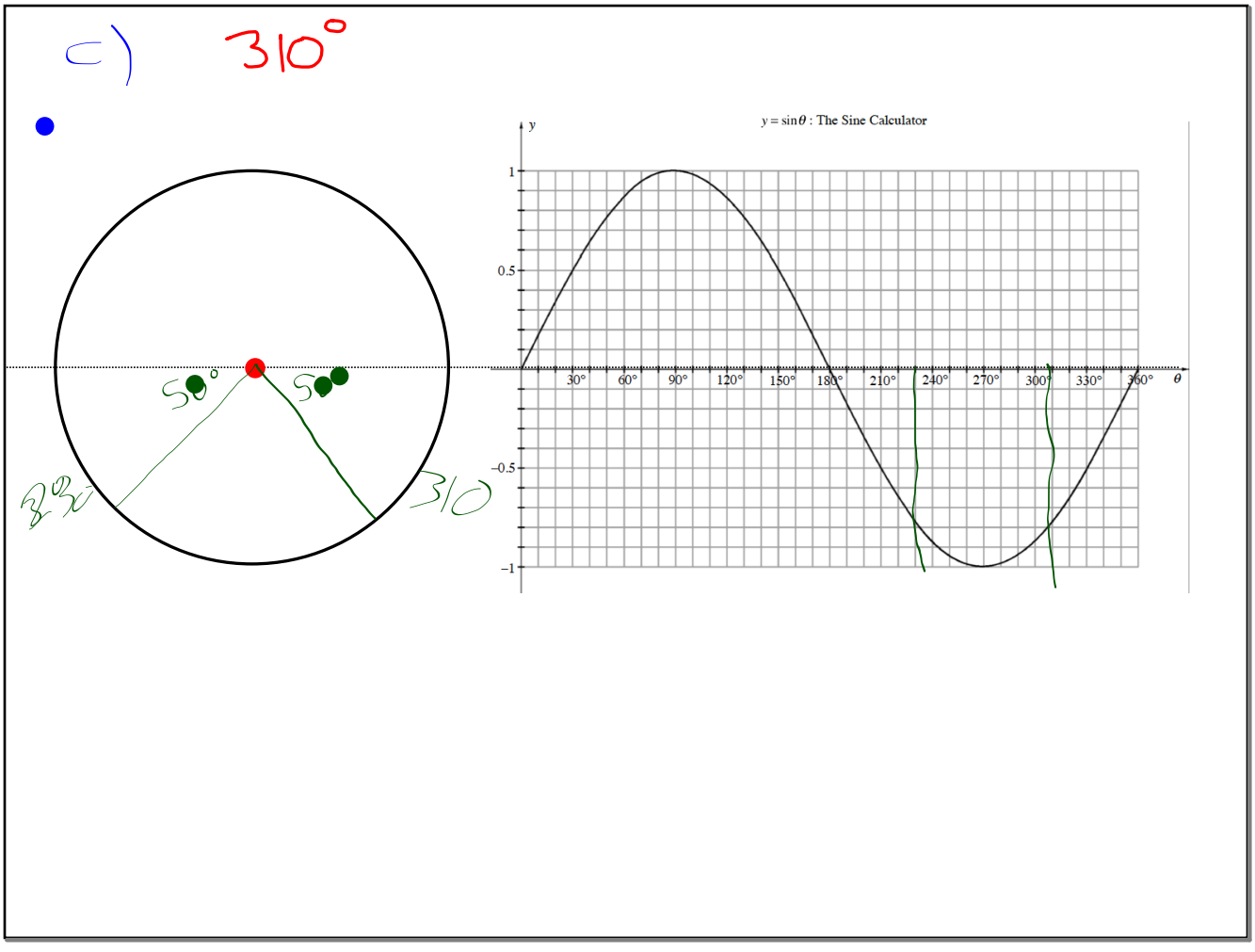

b) 200°
y = sin θ : The Sine Calculator
y
1
0.5
−1
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°
360°
θ
200°
340°

c) 310°


y = sin θ : The Sine Calculator
y
1
0.5
−0.5
−1
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°
360°
θ
50°
50°
310

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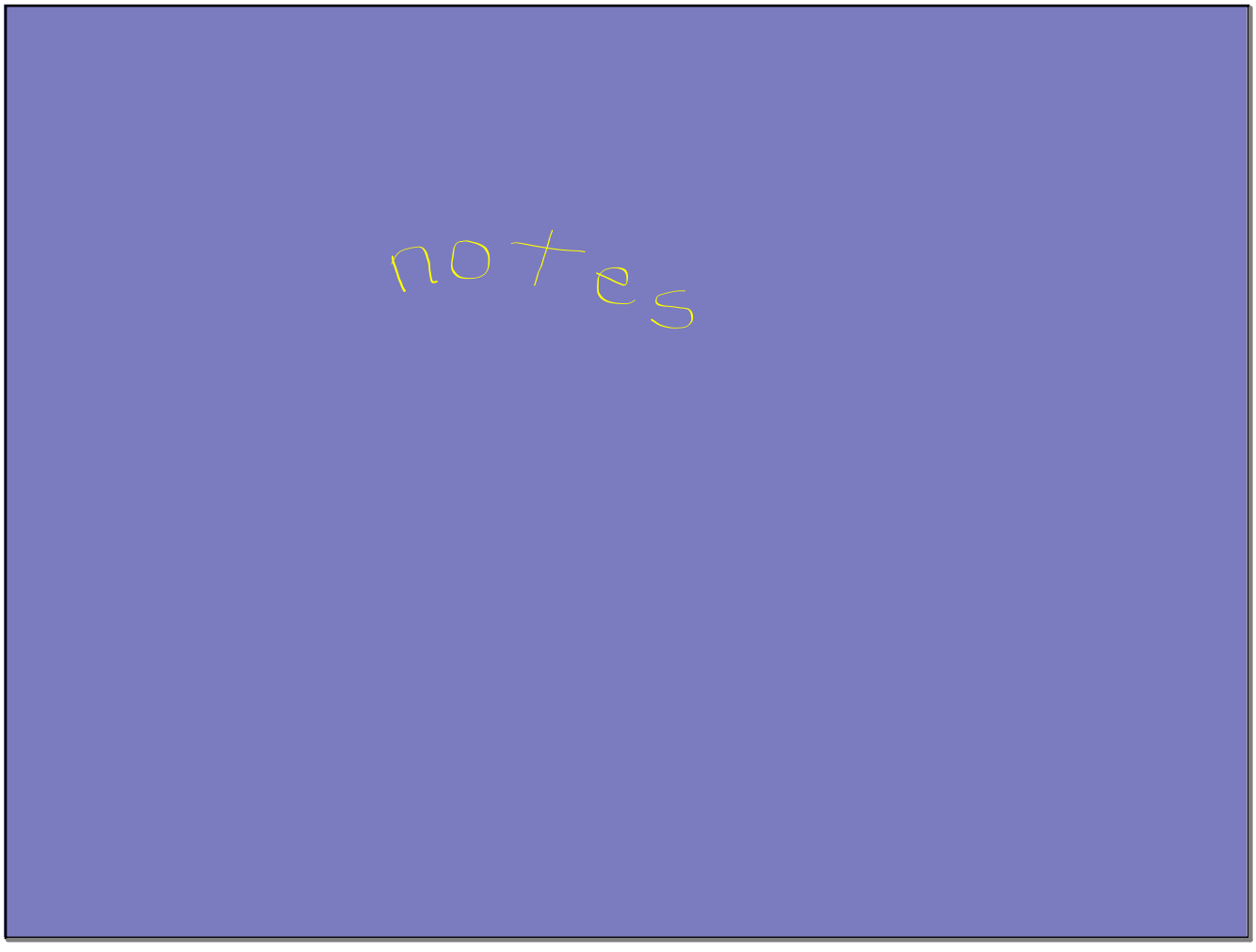
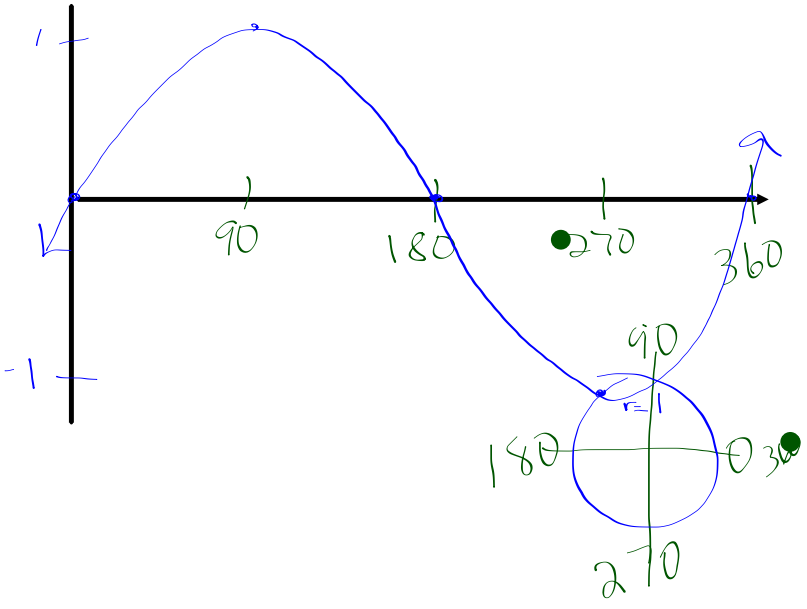
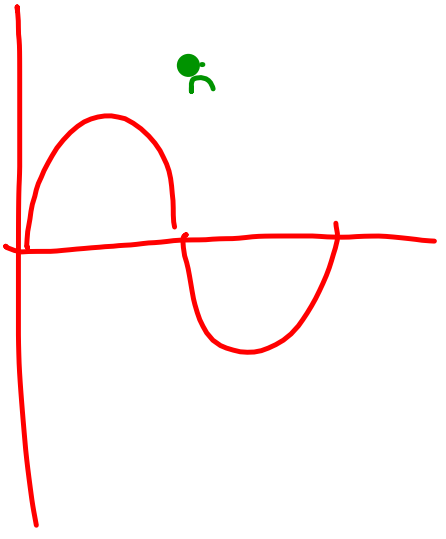
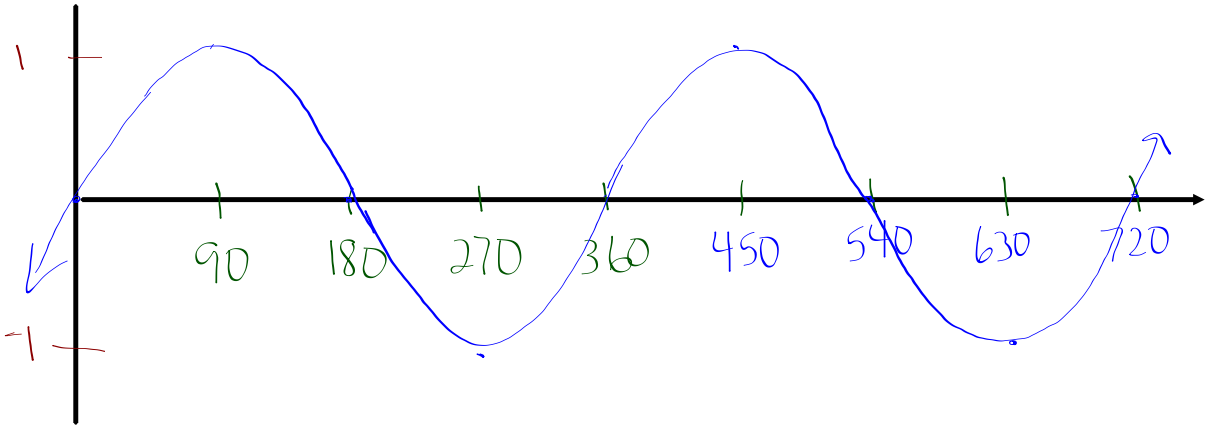


Sketch and label once cycle of the sine function





Now on a separate grid sketch 2 cycles.



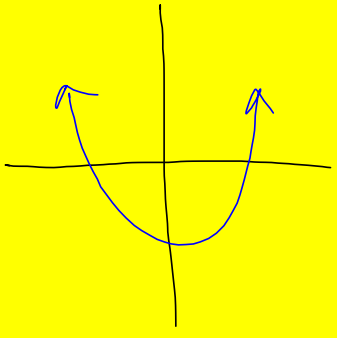
A Zero of a function

- is the same value as an

Find the zeros (x-intercepts)

of $y = \sin X$

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



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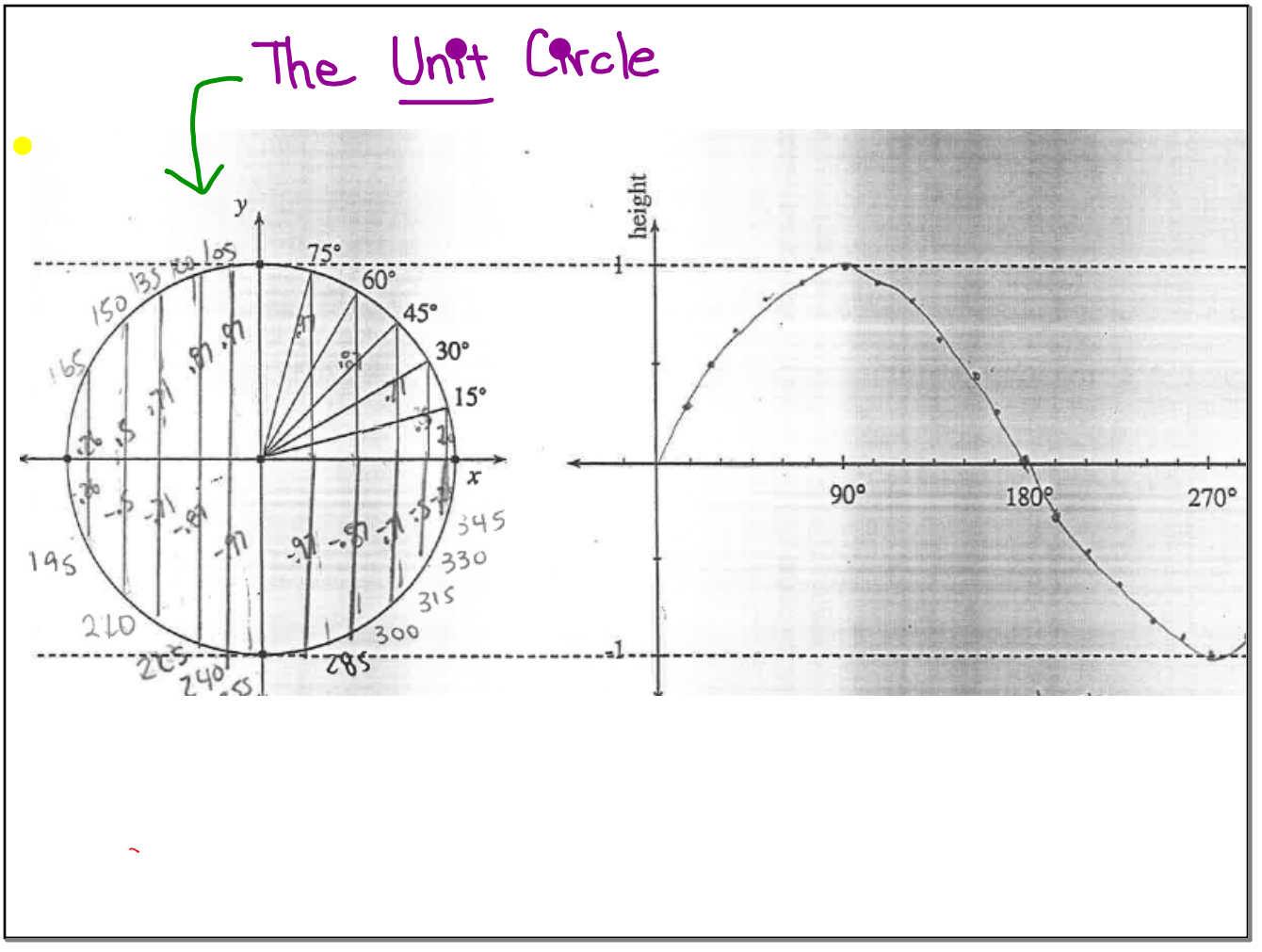
The Unit Circle



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Assignment :

7.....36-38, 40-41, 44

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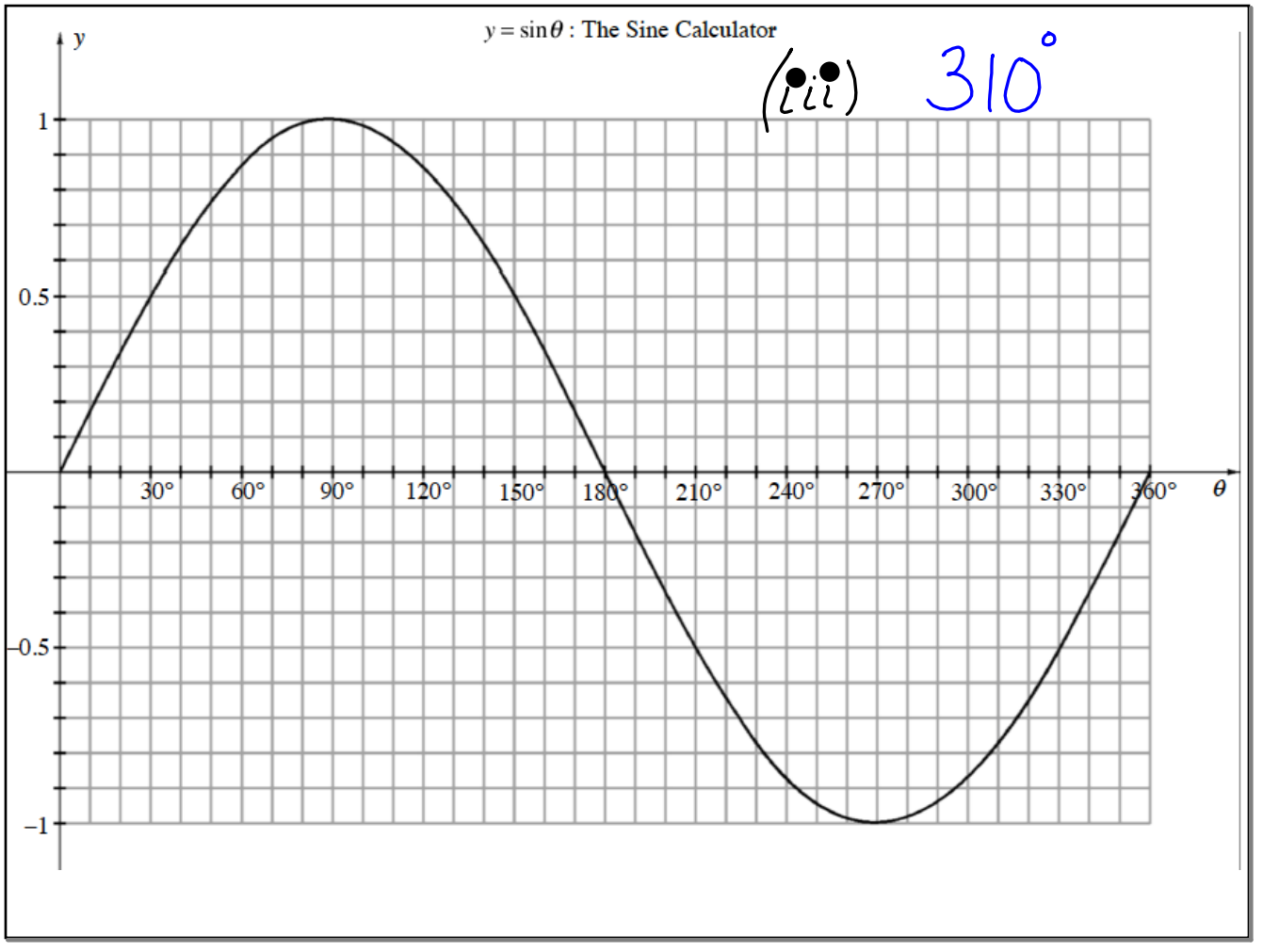
$y = \sin\theta$: The Sine Calculator
y
1
0.5
−0.5
−1
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°
360°
θ
(iii)
310°

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