

Unit Circle

Day 1 Notes

Objective:

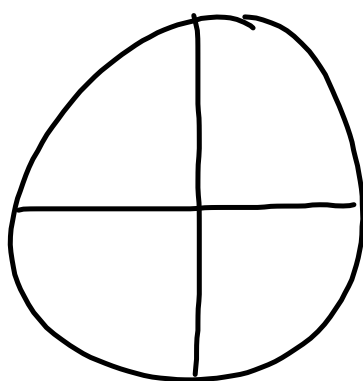
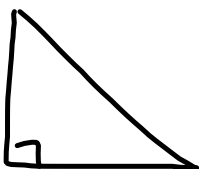
To find the side lengths of 30-60-90 and 45-45-90 degree triangles.

To plot 30-60-90 and 45-45-90 degree triangles on a coordinate plane.

1st period notes

Trig:

2 min: What do you know?



hypotenuse

chord

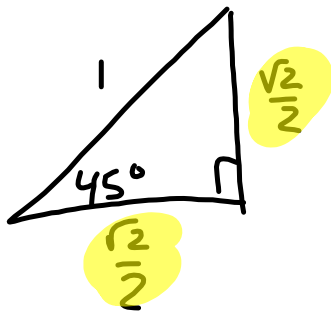
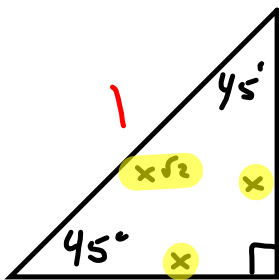
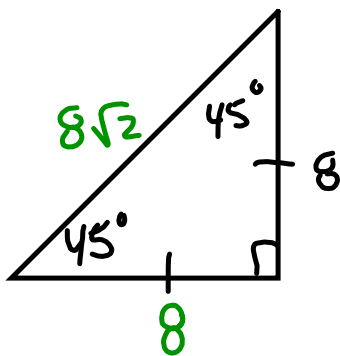
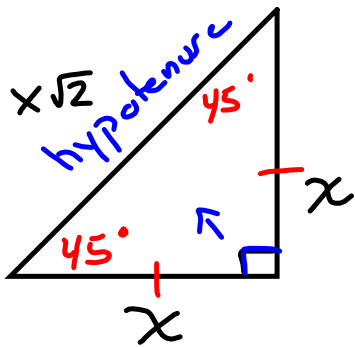
SOHCAHTOA

$$a^2 + b^2 = c^2$$

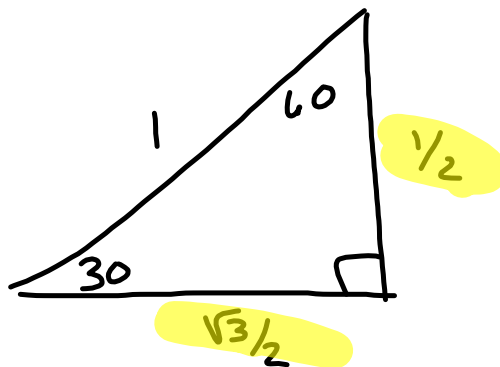
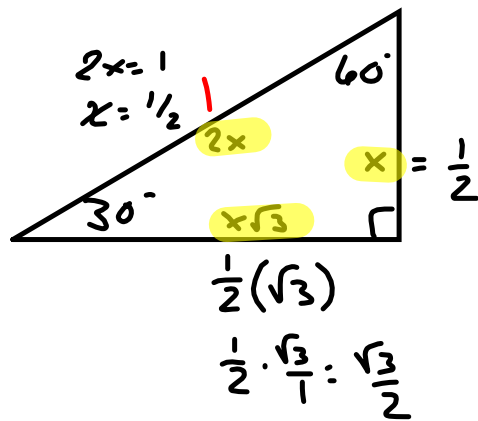
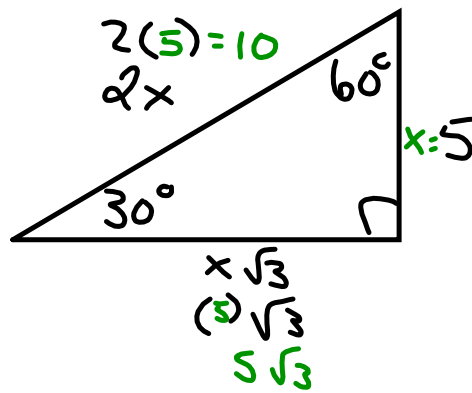
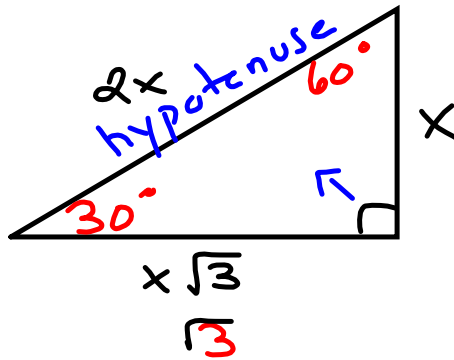
radius

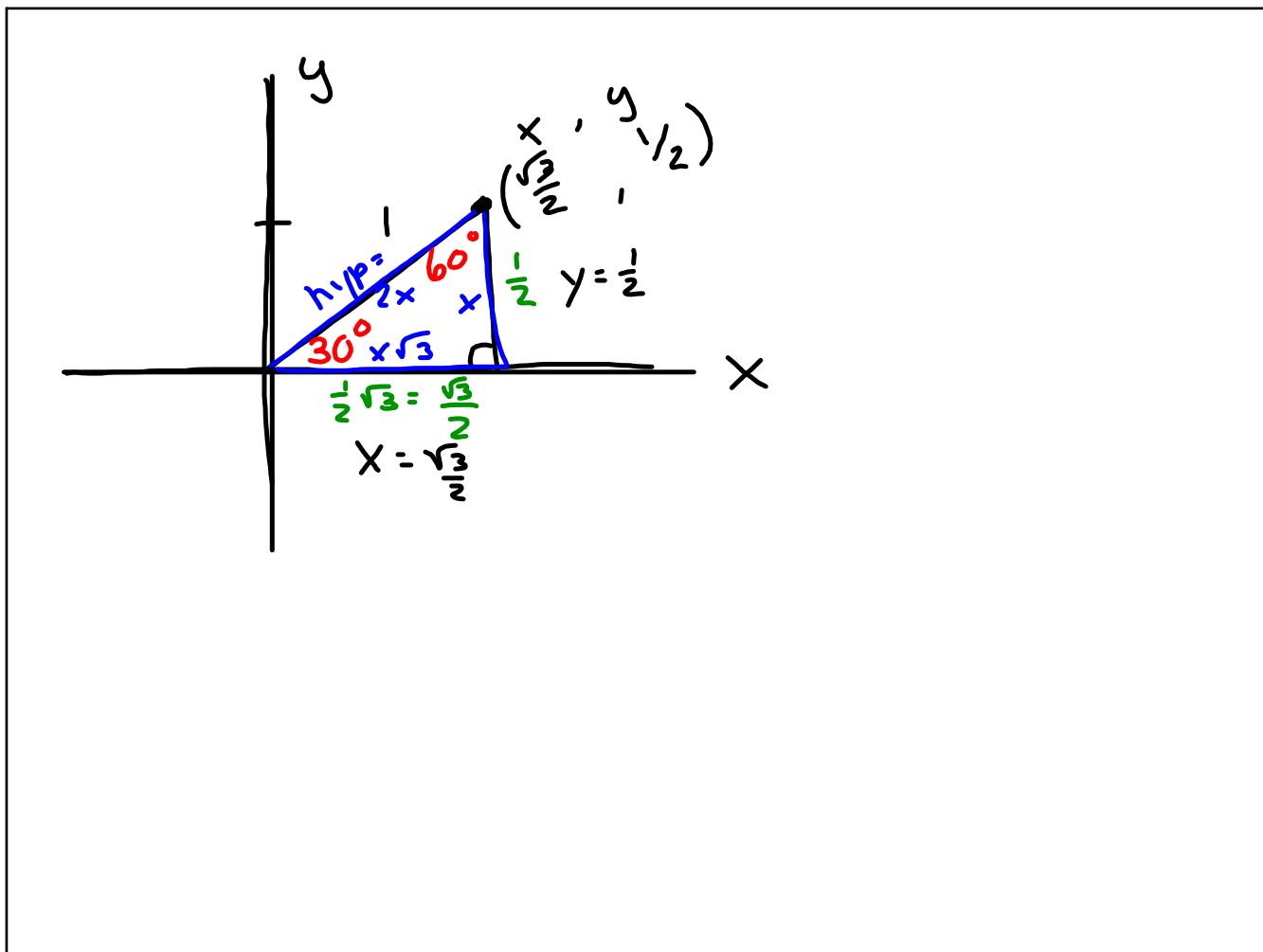
secant

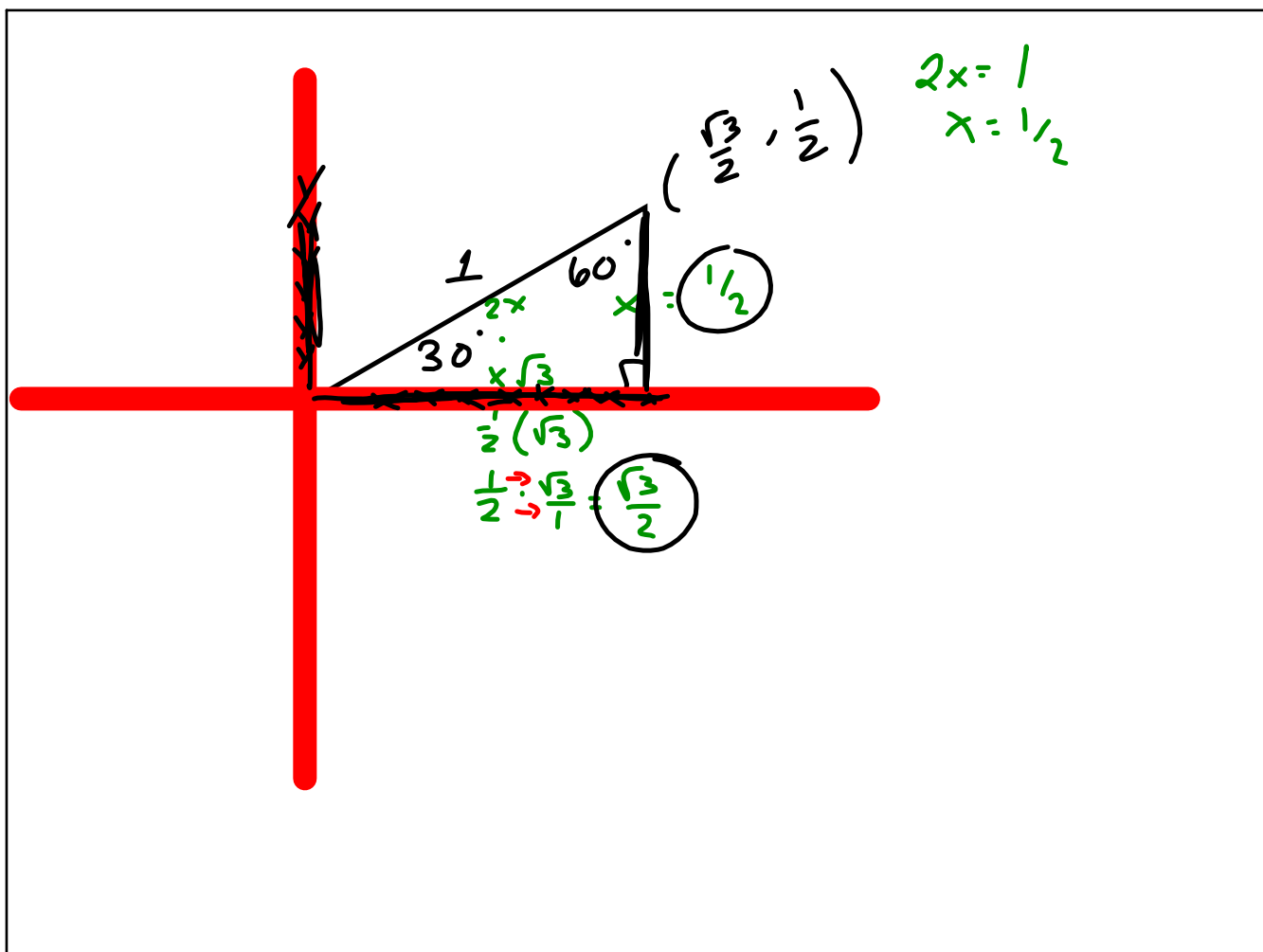
45-45-90

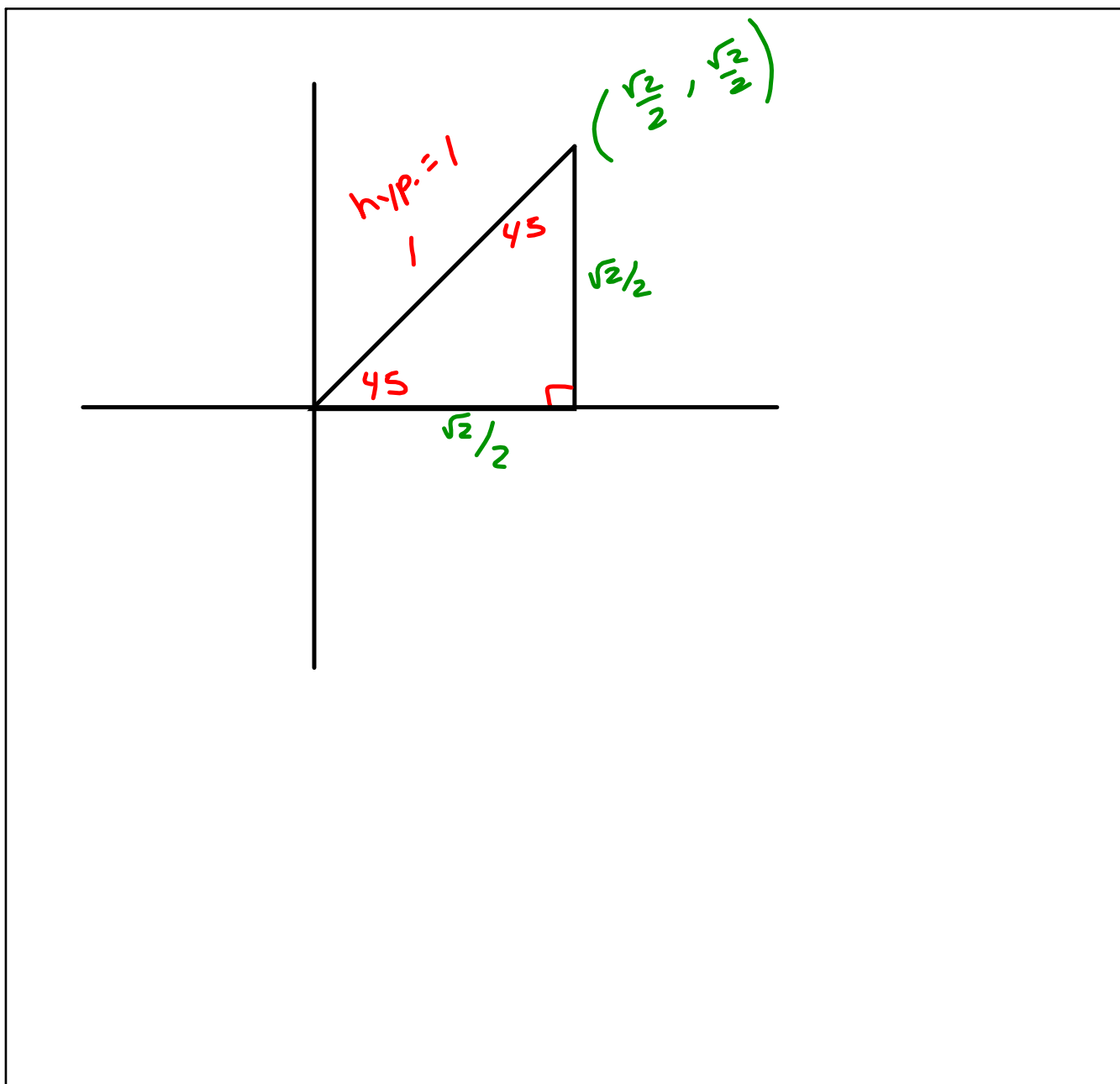


30-60-90









$$\frac{1}{\sqrt{2}} = \frac{x\sqrt{2}}{\sqrt{2}}$$

$$\frac{1}{\sqrt{2}} = x$$

$$\frac{1}{\sqrt{2}} \cdot \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$x = \frac{\sqrt{2}}{2}$$

$x = \frac{\sqrt{2}}{2}$

$\frac{\sqrt{2}}{2}$

4th period Notes

Circles & Triangles

2 min

radius
diameter

$$C = 2\pi r$$

$$A = \pi r^2$$

$$360^\circ$$

SOHCAHTOA

$$a^2 + b^2 = c^2$$



Rt Δ

3 types

$$180^\circ$$

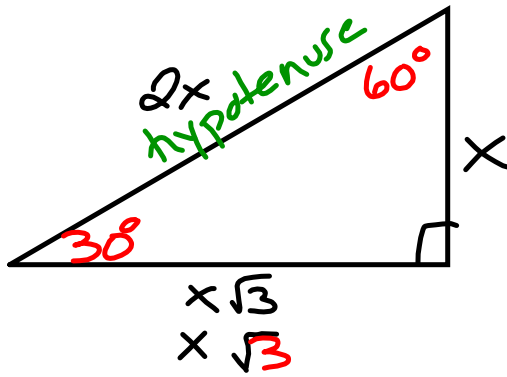
$$\sin = \frac{O}{H}$$

$$\cos = \frac{A}{H}$$

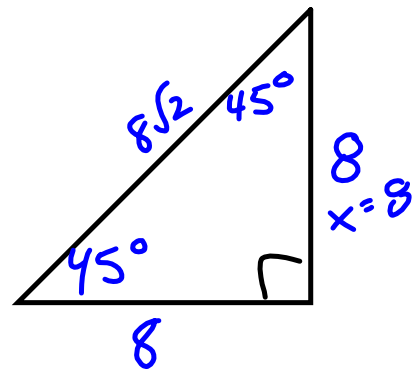
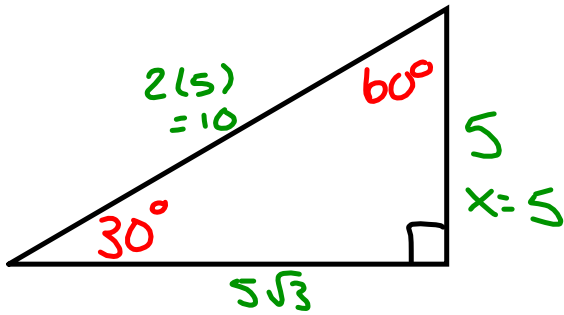
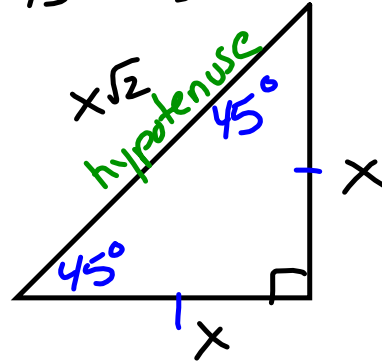
$$\tan = \frac{O}{A}$$

SO
HCA
TOA

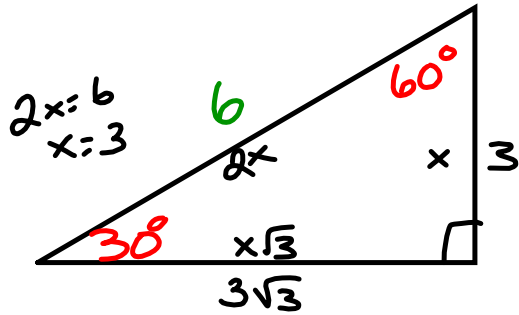
30-60-90



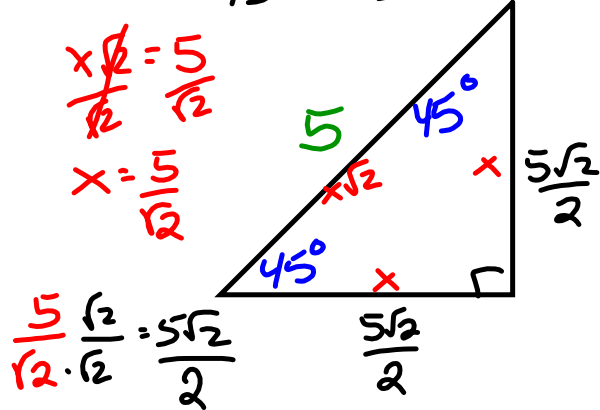
45-45-90



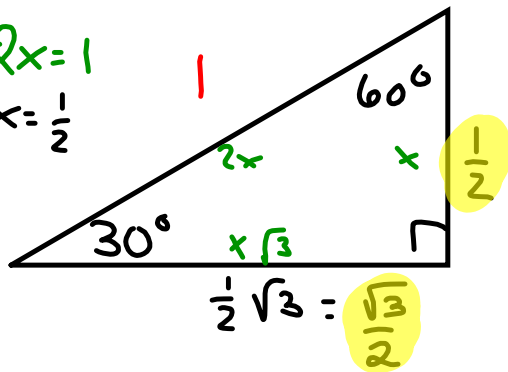
30-60-90



45-45-90

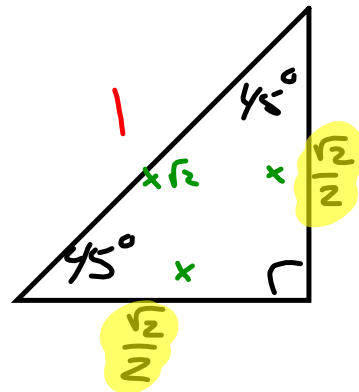


$2x = 1$
 $x = \frac{1}{2}$



$\frac{1}{2} \cdot \frac{\sqrt{3}}{1} = \frac{\sqrt{3}}{2}$

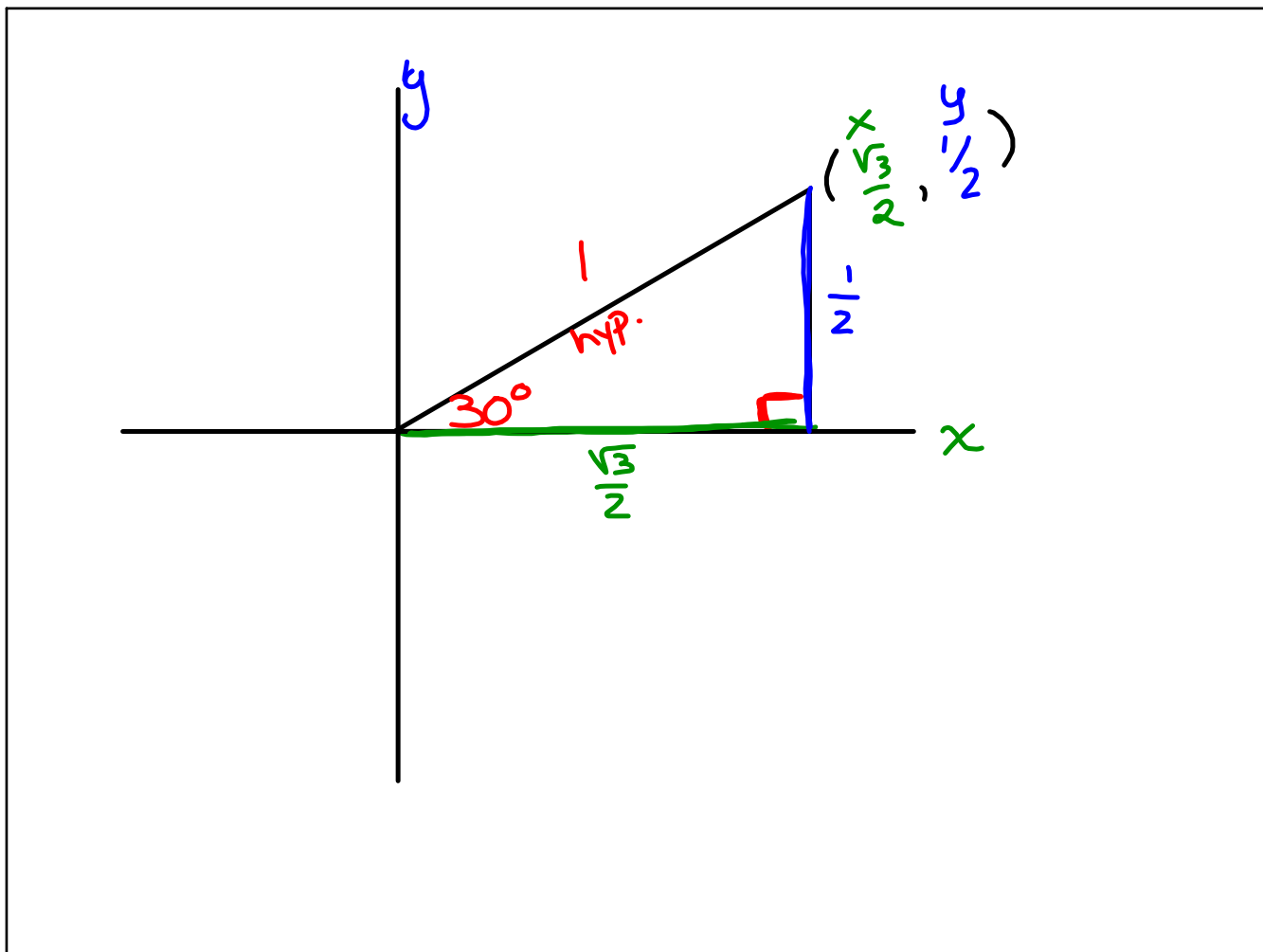
$x\sqrt{2} = 1$

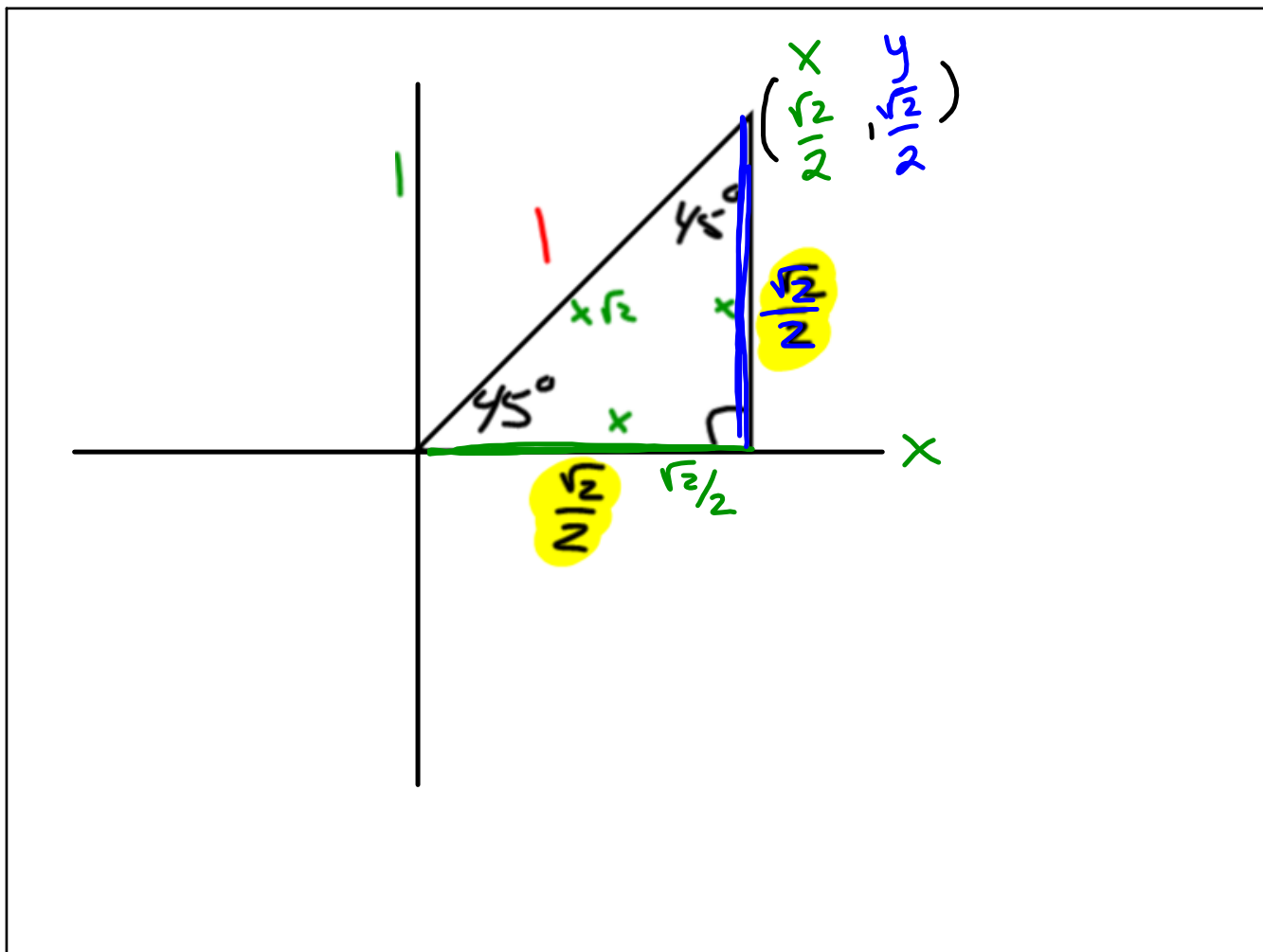


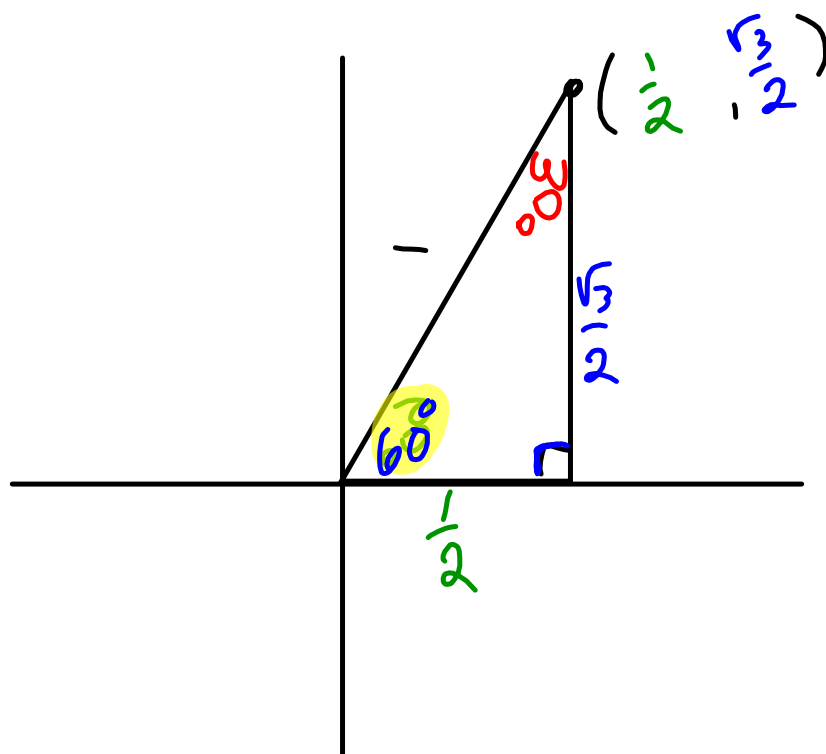
$\frac{x\sqrt{2}}{\sqrt{2}} = \frac{1}{\sqrt{2}}$

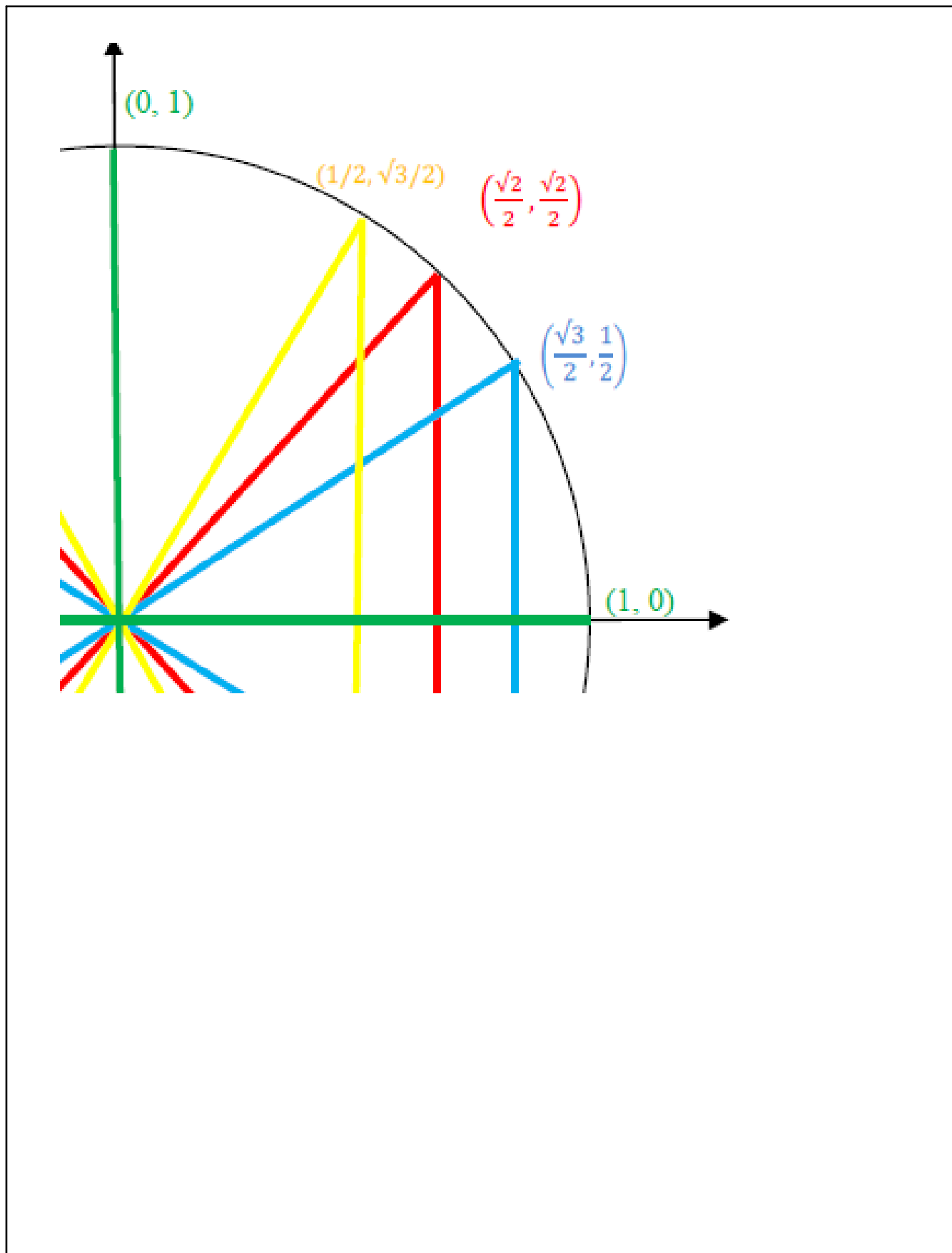
$x = \frac{1}{\sqrt{2}}$

$\frac{1}{\sqrt{2}} \rightarrow \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2}}{2}$









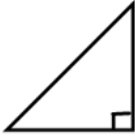
Notes Organizer

Unit 2 - Triangle Trigonometry

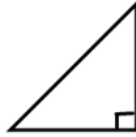
Fall 2012

Write out the Trig Ratios

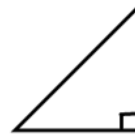
Sin θ = ____



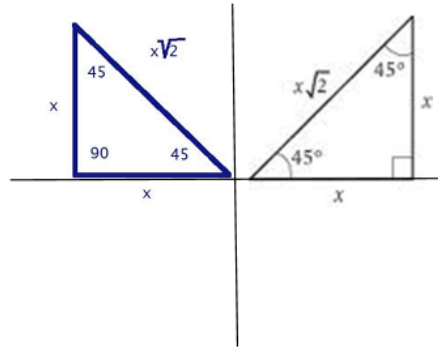
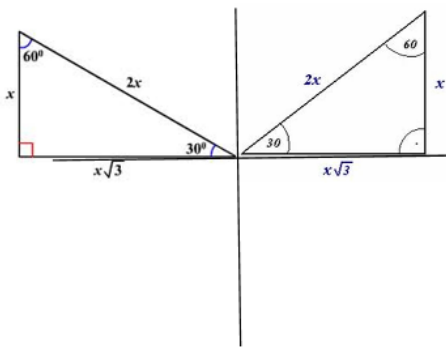
cos θ = ____



tan θ = ____



Special Right Triangle



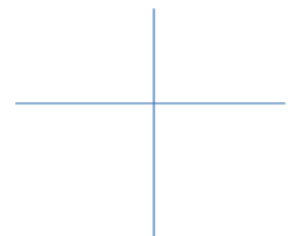
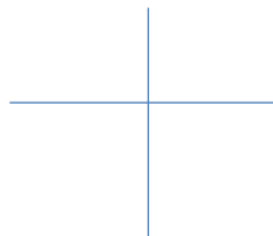
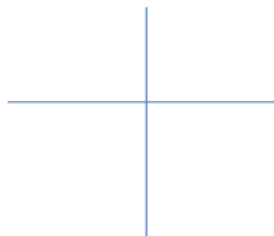
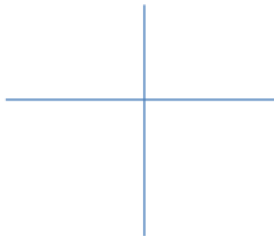
Making Triangles on a Coordinate Plane

Triangle at (3,6)

Triangle at (-3,6)

Triangle at (-3,-6)

Triangle at (3,-6)



Hypotenuse = ____

Hypotenuse = ____

Hypotenuse = ____

Hypotenuse = ____

Sin θ = ____

Sin θ = ____

Sin θ = ____

Sin θ = ____

cos θ = ____

cos θ = ____

cos θ = ____

cos θ = ____

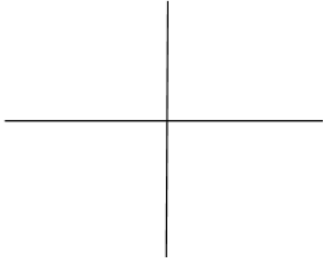
tan θ = ____

tan θ = ____

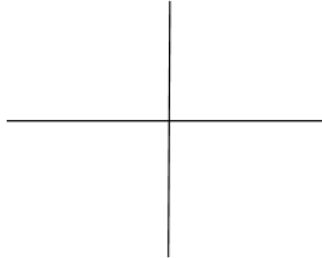
tan θ = ____

tan θ = ____

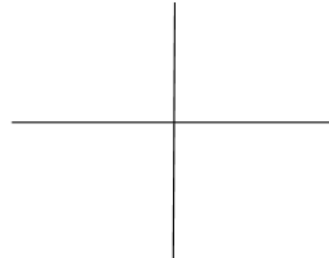
Sketch a 60° right triangle in Quad. I



Sketch a 60° right triangle from the x-axis in Quad. II



Sketch a 60° right triangle from the x-axis in Quad. III



What is the total degree of this angle between 0° and 360° ? _____

What is the total degree of this angle between 0° and 360° ? _____

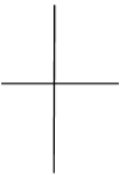
What is the total degree of this angle between 0° and 360° ? _____

Which angle above is the reference angle? _____ Why? _____

Which angle above is the co-terminal angle? _____ Why? _____

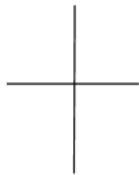
Draw the angle following angle measures on a coordinate plane.

250°



Quad __

-70°



Quad __

410°



Quad __

-310°



Quad __

-540°



Quad __

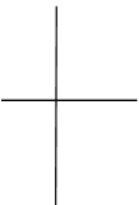
-220°



Quad __

Plot the following points, make a line from the origin to the point, make a right triangle, and then find all side lengths and angle measure.

(3, 4)



Sin θ = ____

Cos θ = ____

Tan θ = ____

(-2, 7)

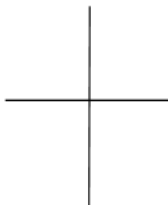


Sin θ = ____

Cos θ = ____

Tan θ = ____

(5, 1)



Sin θ = ____

Cos θ = ____

Tan θ = ____

(-3, -2)



Sin θ = ____

Cos θ = ____

Tan θ = ____

(8, -5)



Sin θ = ____

Cos θ = ____

Tan θ = ____

What is the Pythagorean Theorem? _____ When can you use this? _____

How do you find the sides of a right triangle? 1. _____ 2. _____

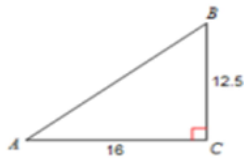
How do you find the angle measures of a right triangle? _____

What does this stand for?

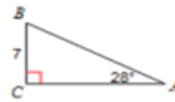
SOHCAHTOA

Solve each triangle. Round answers to the nearest tenth.

1)



2)



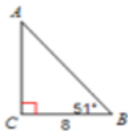
3)



4)



5)



6)



Make 30°, 45°, 60° triangles around the coordinate plane using all quadrants (Quad I – IV).

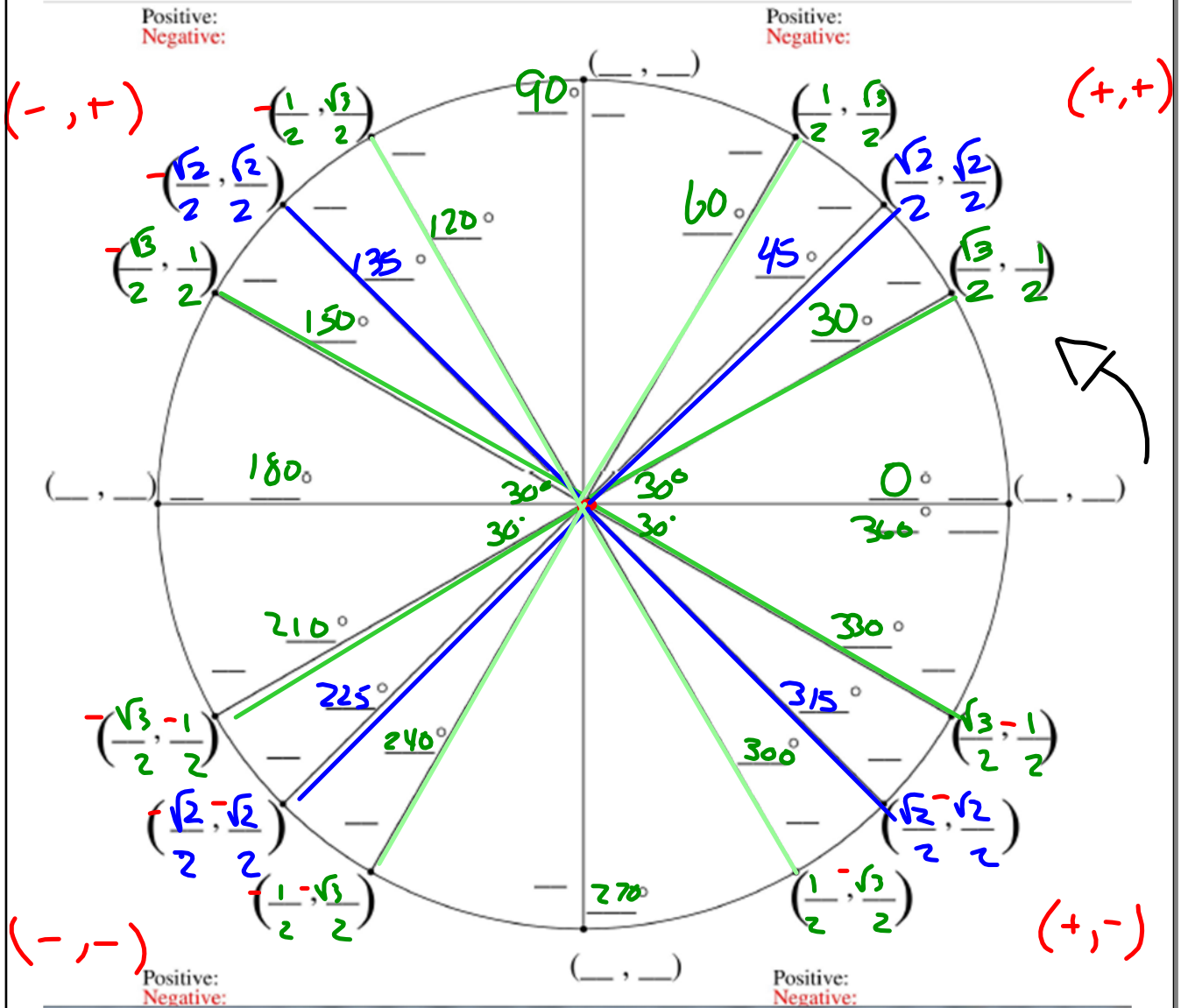
Two blank coordinate planes, each consisting of a horizontal x-axis and a vertical y-axis intersecting at the origin. The first plane is on the left and the second is on the right.

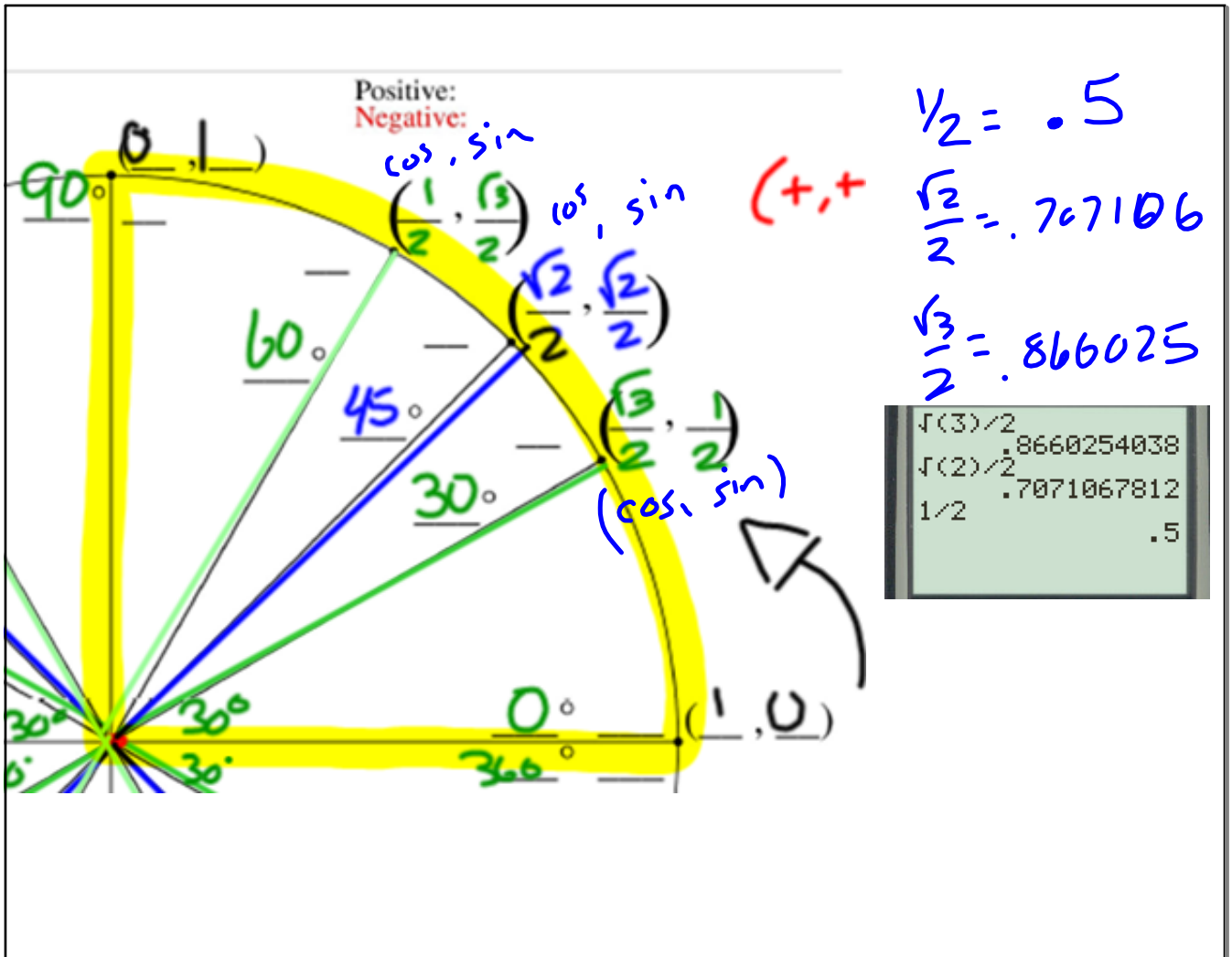
Unit Circle

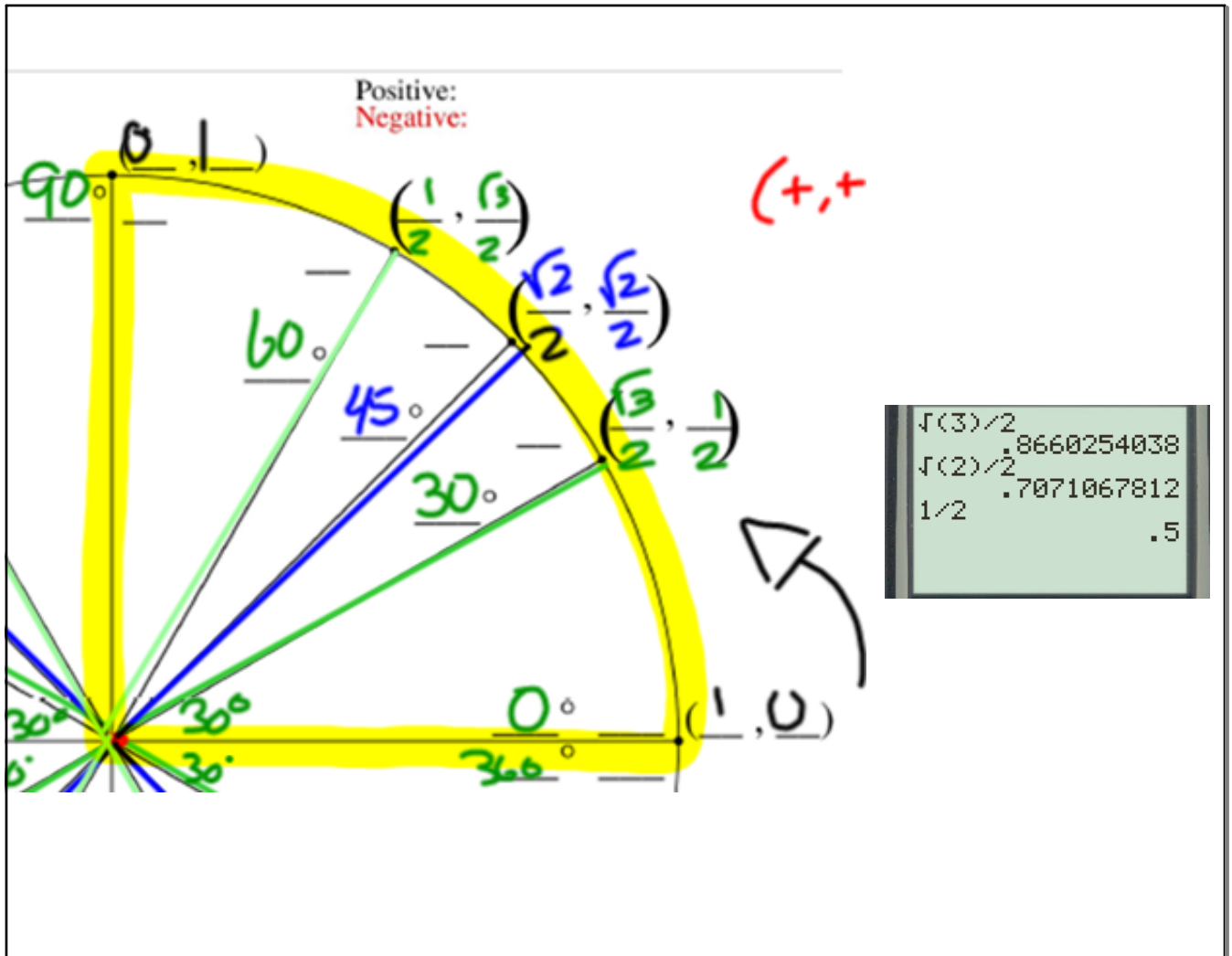
Name _____

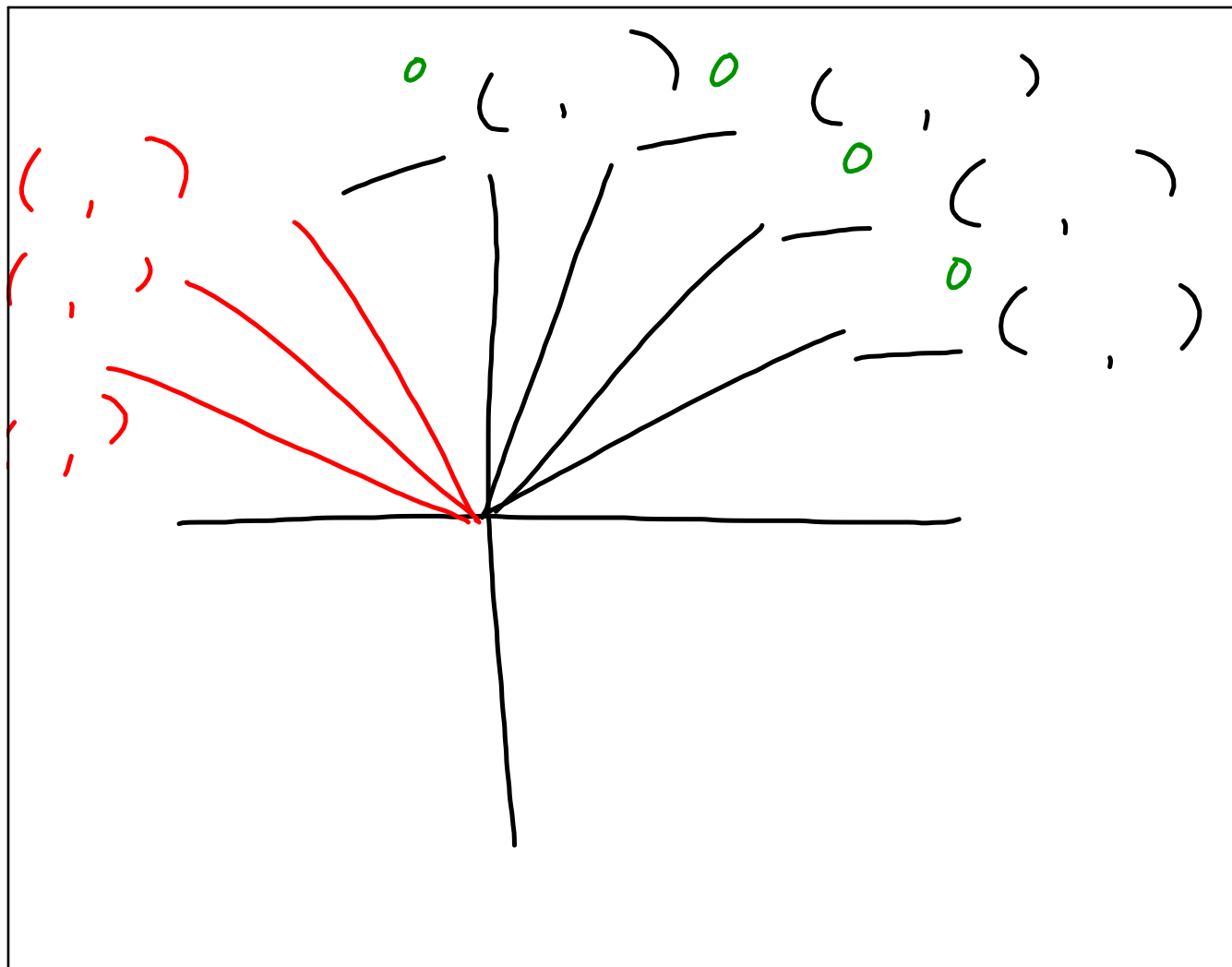
Date: 6-27-2012

Pd. _____









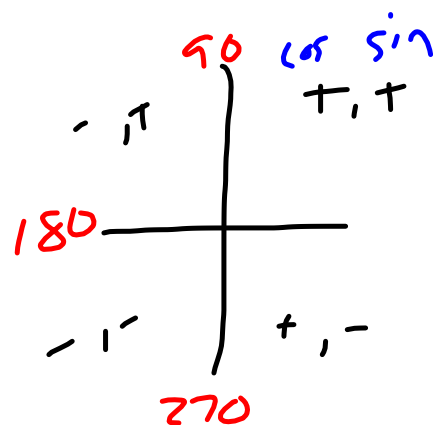
$$\sin 135^\circ = \frac{\sqrt{2}}{2}$$

$$\cos 225^\circ = -\frac{\sqrt{3}}{2}$$

$$\cos 300^\circ = \frac{1}{2}$$

$$\sin 270^\circ = -1$$

$$\sin 240^\circ = -\frac{\sqrt{3}}{2}$$



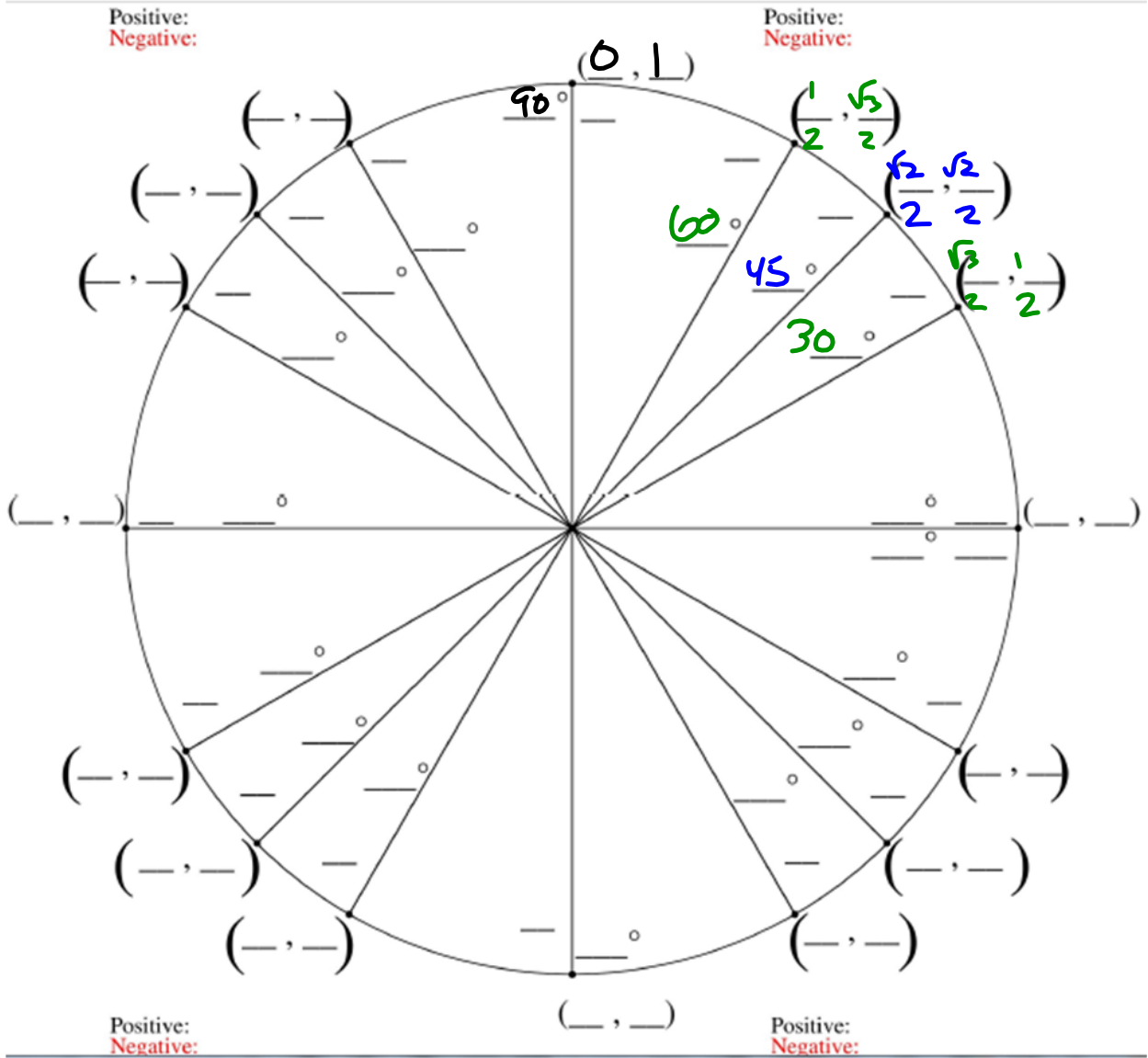
$$\begin{matrix} \cos & \sin \\ (0, -1) \end{matrix}$$

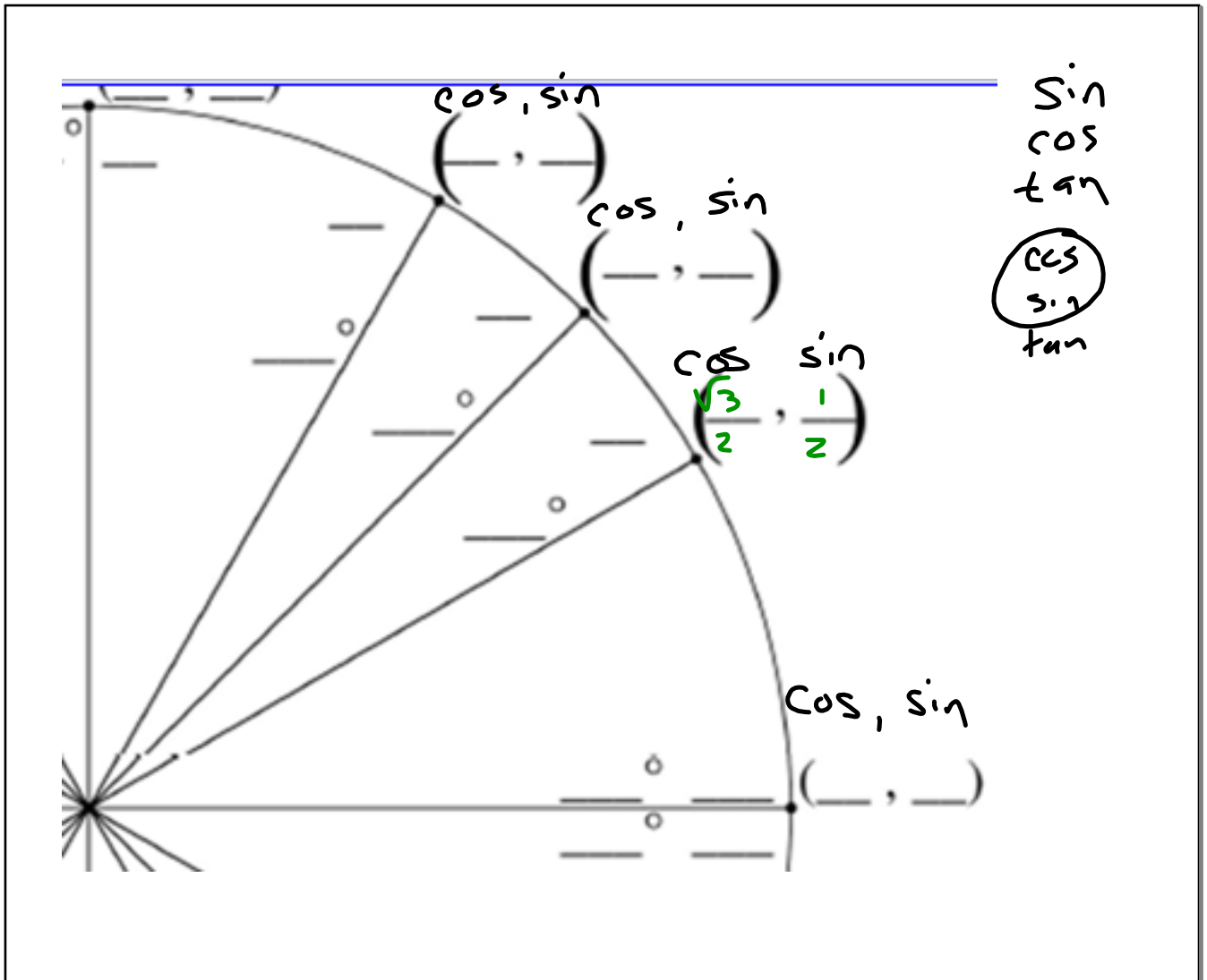
Unit Circle

Name _____

Date: 6-27-2012

Pd. _____



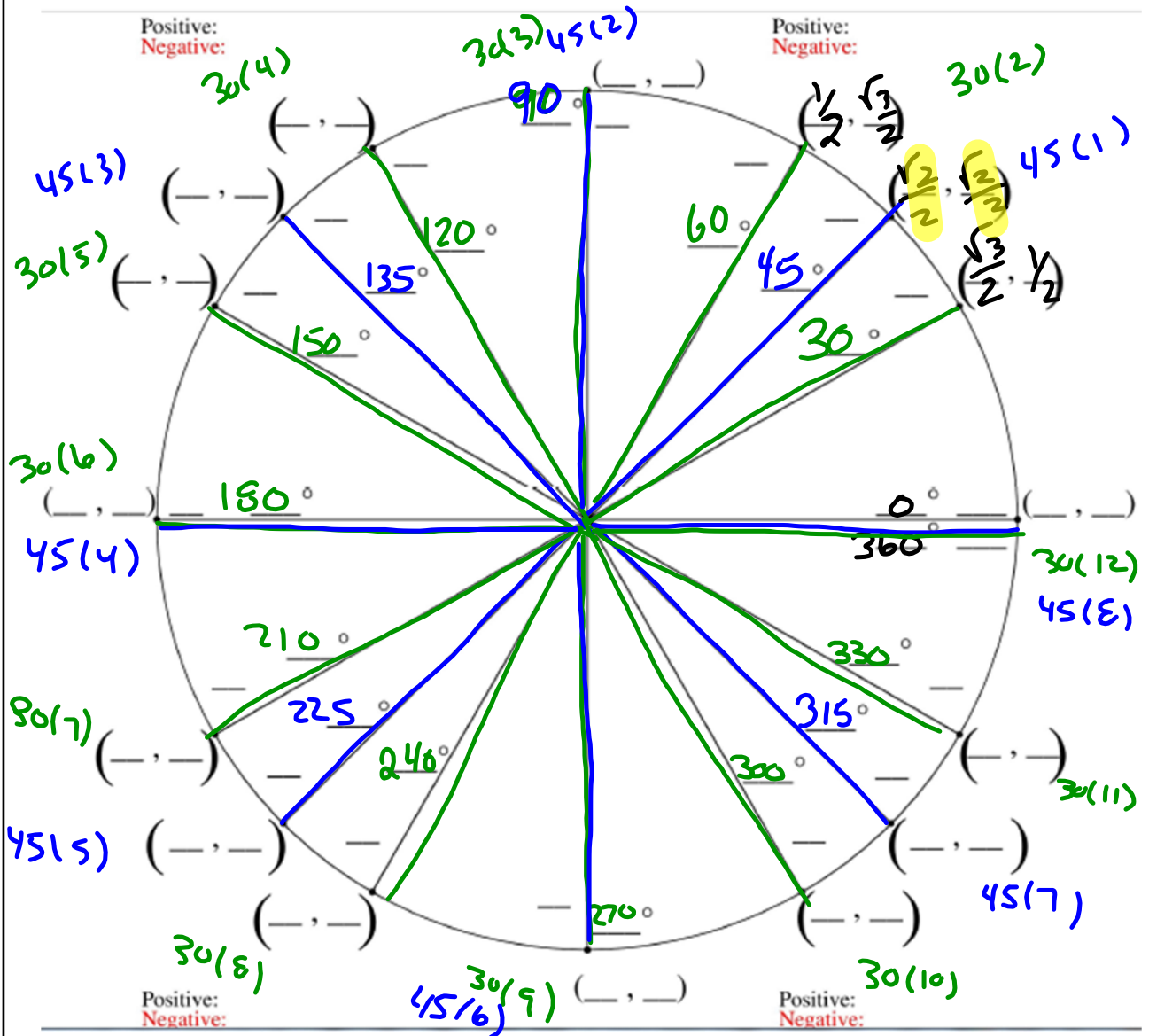


Unit Circle

Name _____

Date: 6-27-2012

Pd. _____

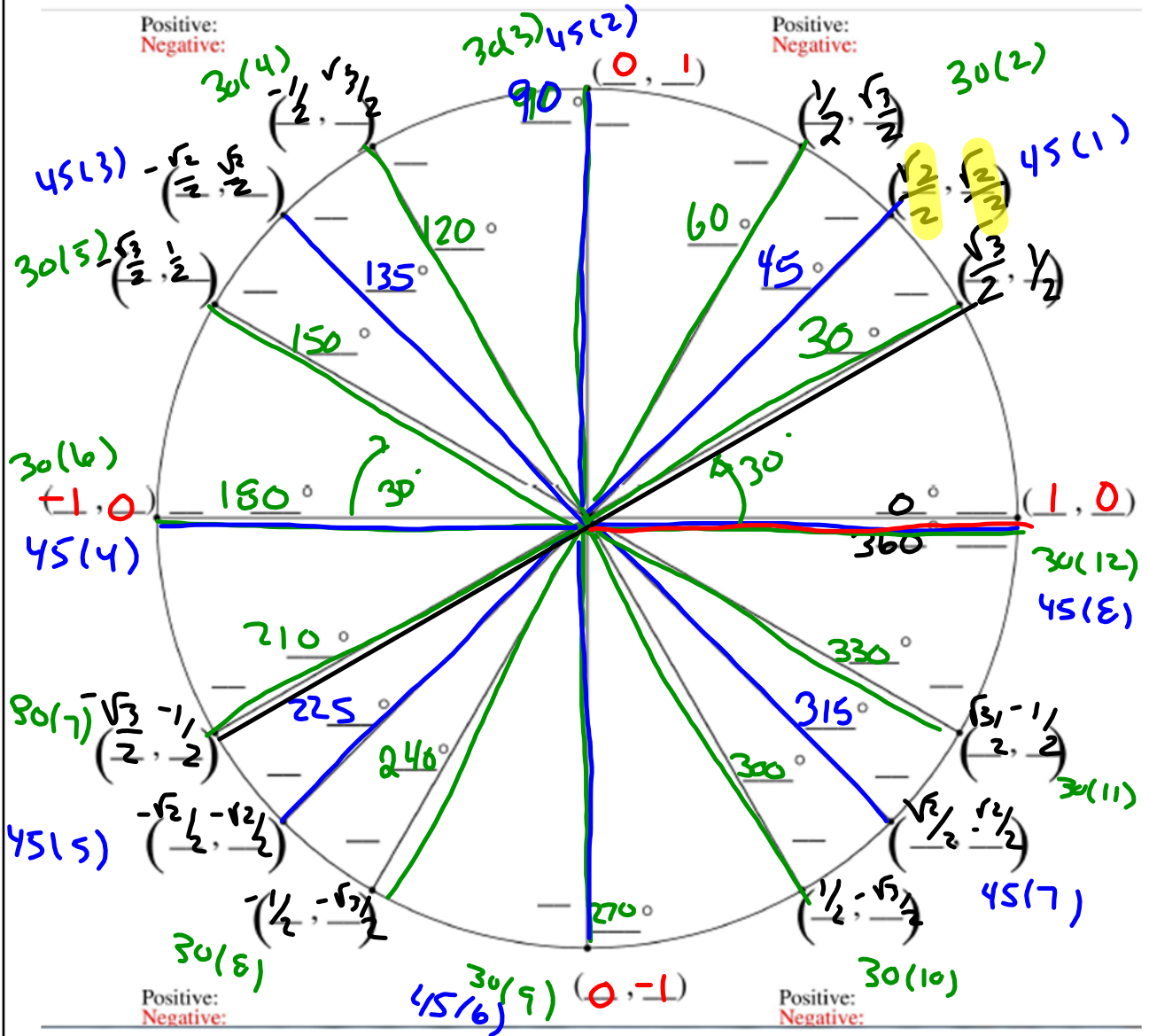


Unit Circle

Name _____

Date: 6-27-2012

Pd. _____

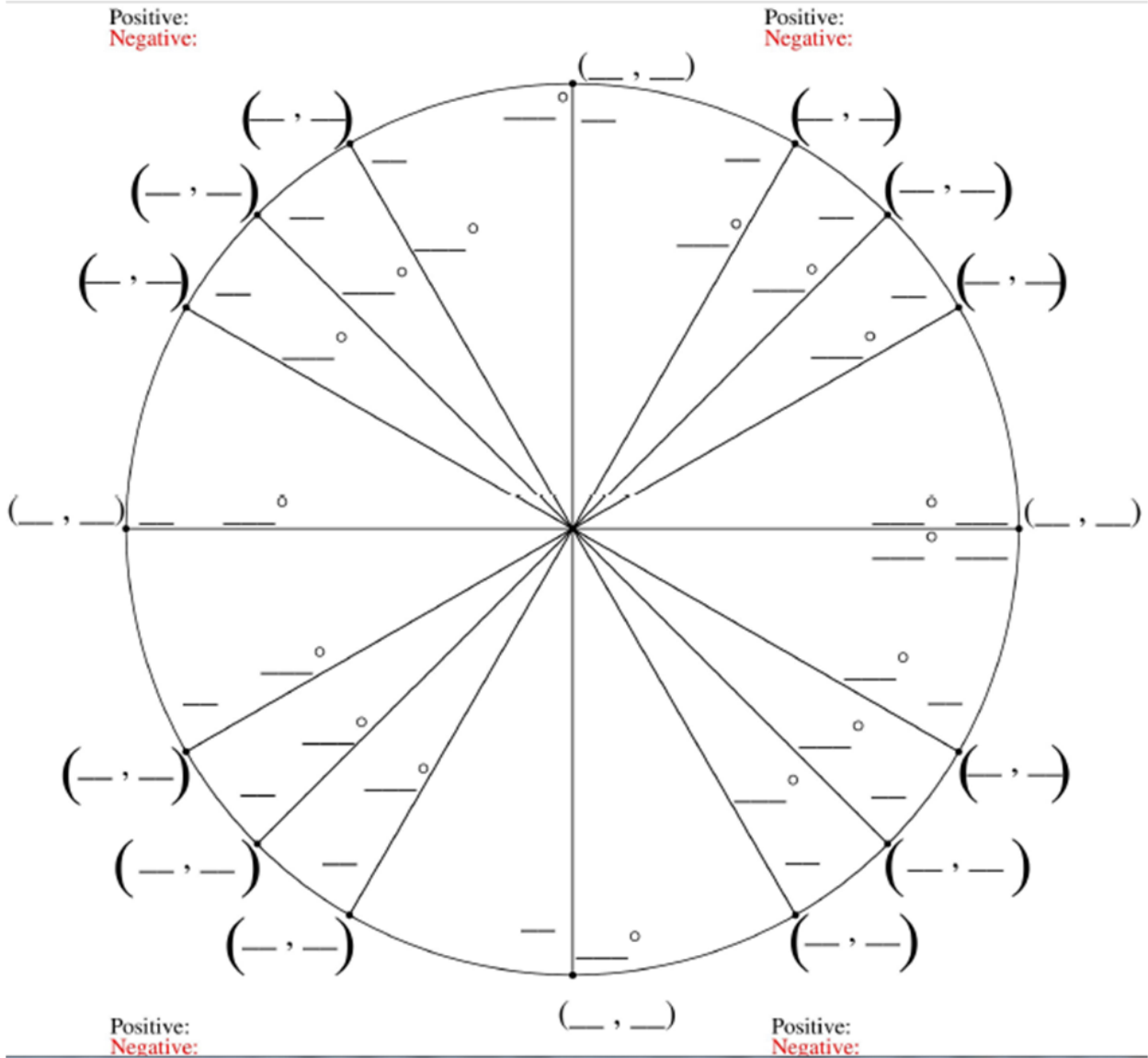


Unit Circle

Name _____

Date: 6-27-2012

Pd. _____

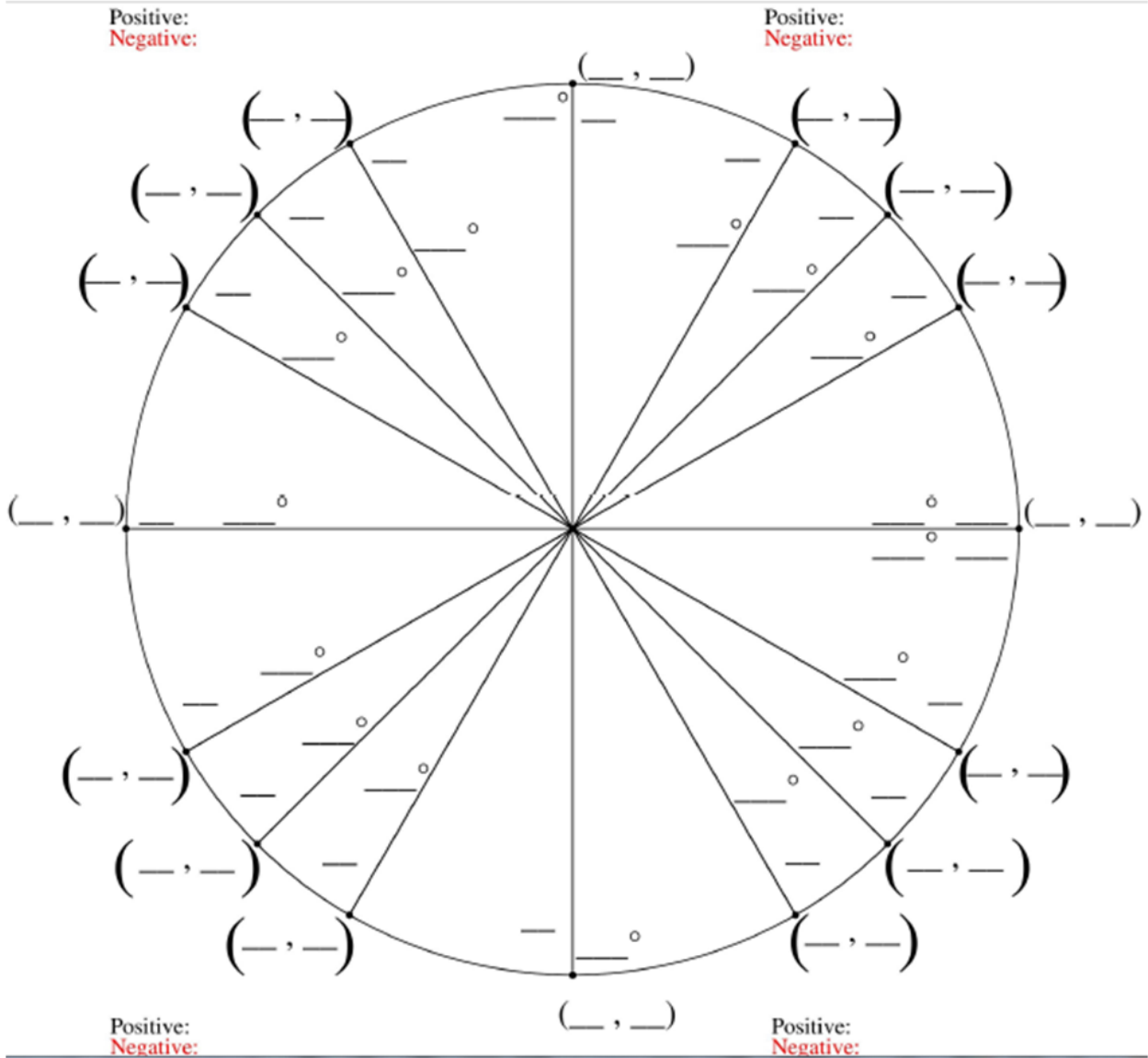


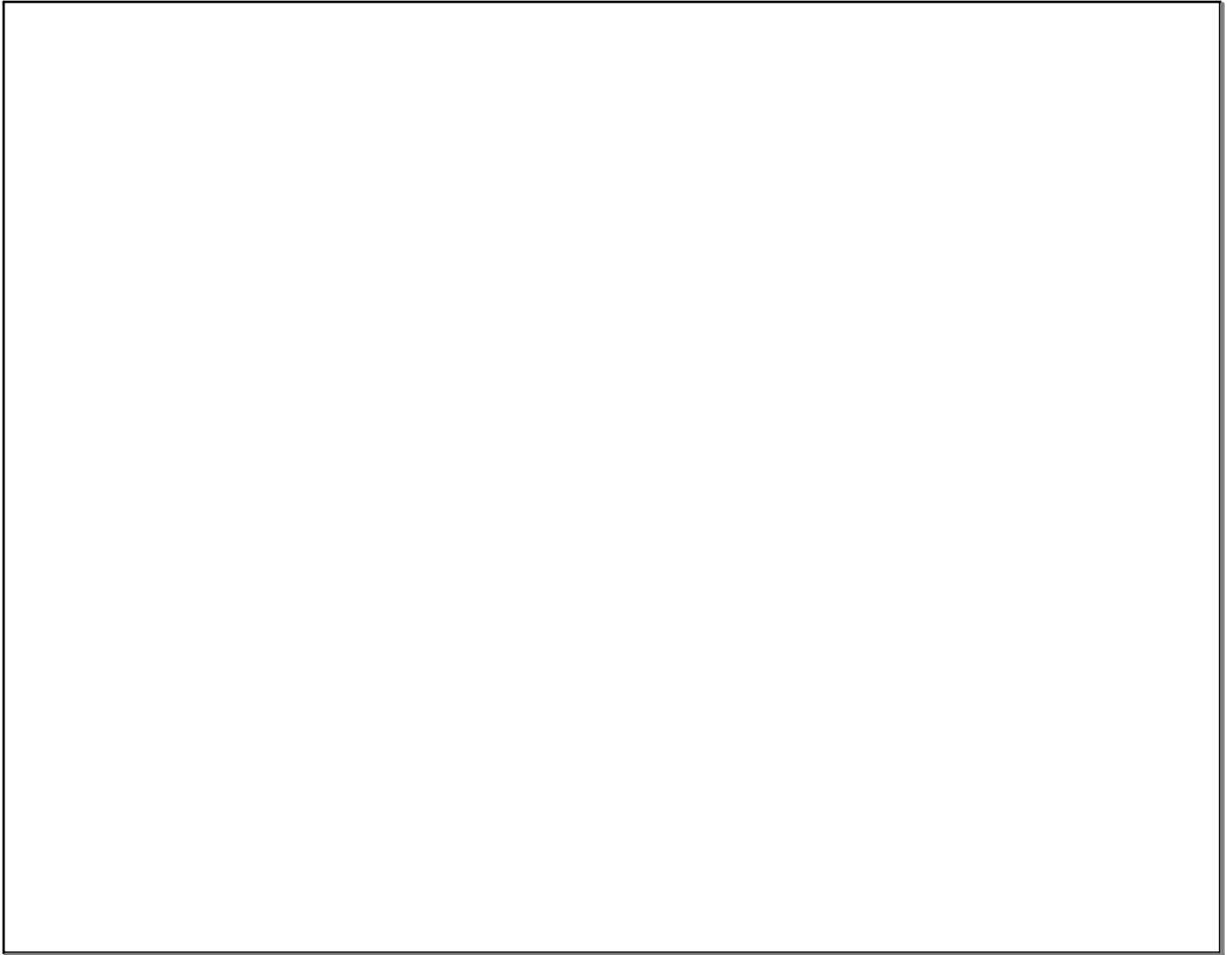
Unit Circle

Name _____

Date: 6-27-2012

Pd. _____





$$\sin(135^\circ) = \frac{\sqrt{2}}{2}$$

$$\cos(120^\circ) = -\frac{1}{2}$$

$$\sin(45^\circ) = \frac{\sqrt{2}}{2}$$

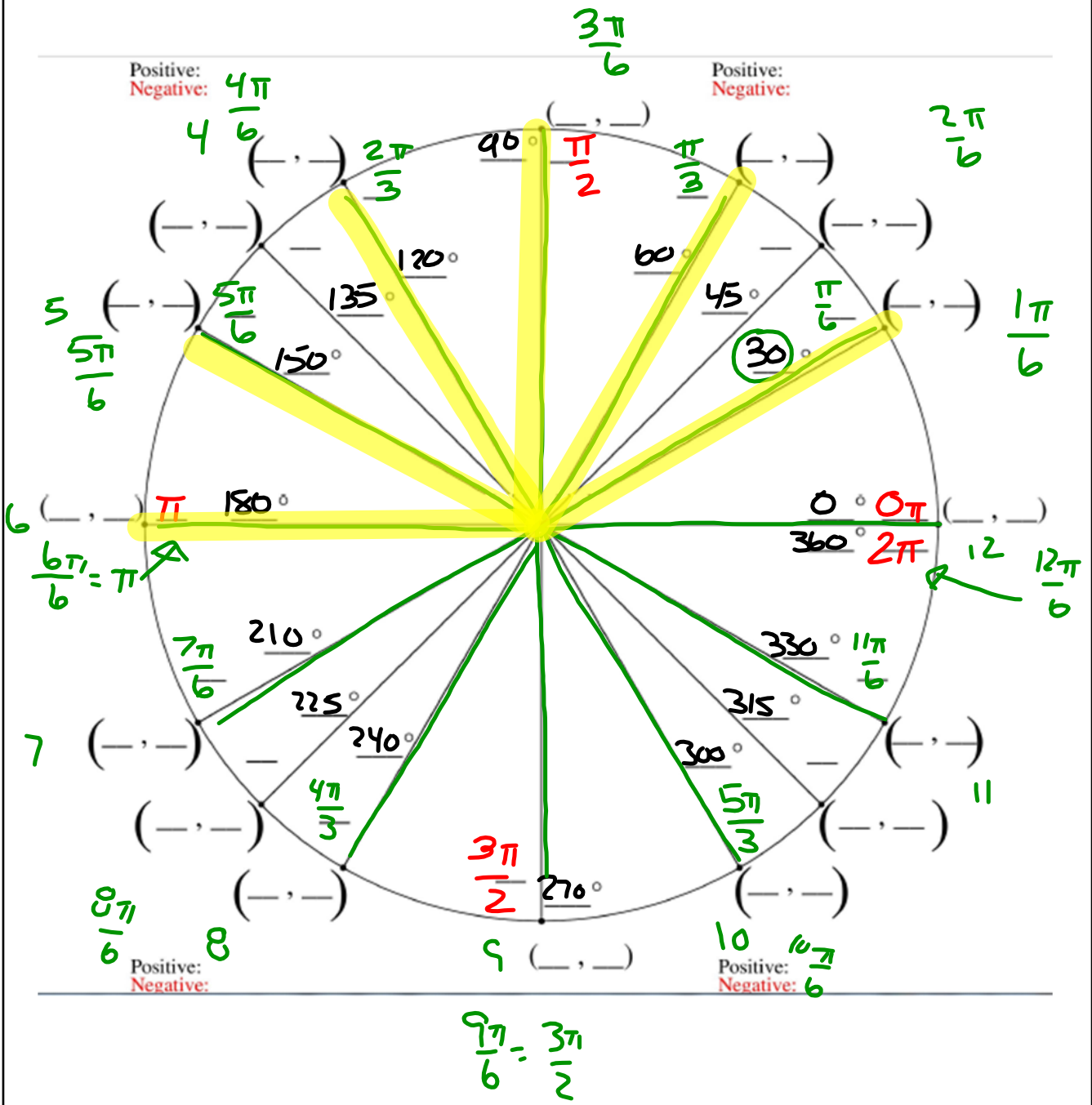
$$\cos(225^\circ) = -\frac{\sqrt{2}}{2}$$

Unit Circle

Name _____

Date: 6-27-2012

Pd. _____

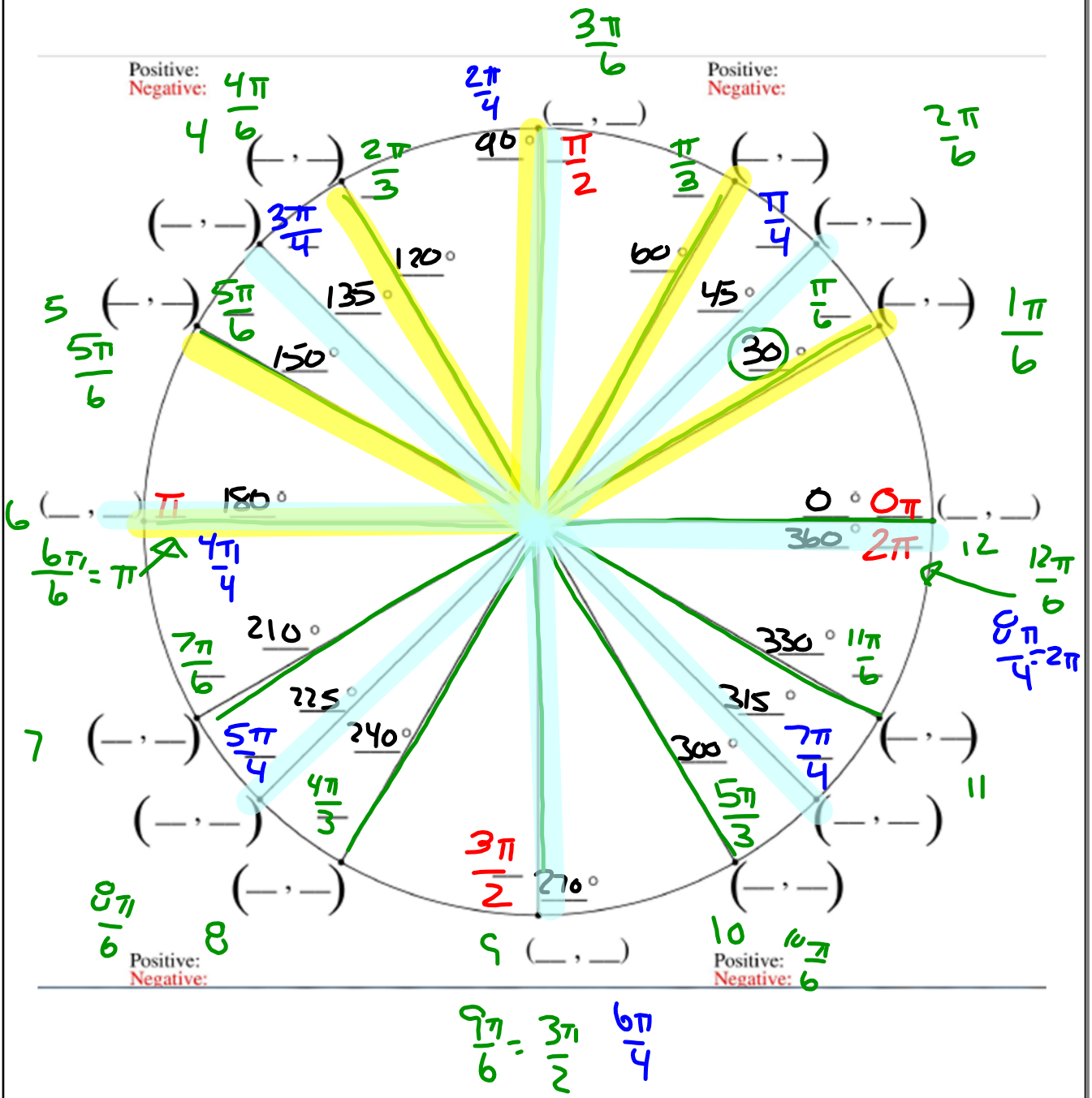


Unit Circle

Name _____

Date: 6-27-2012

Pd. _____

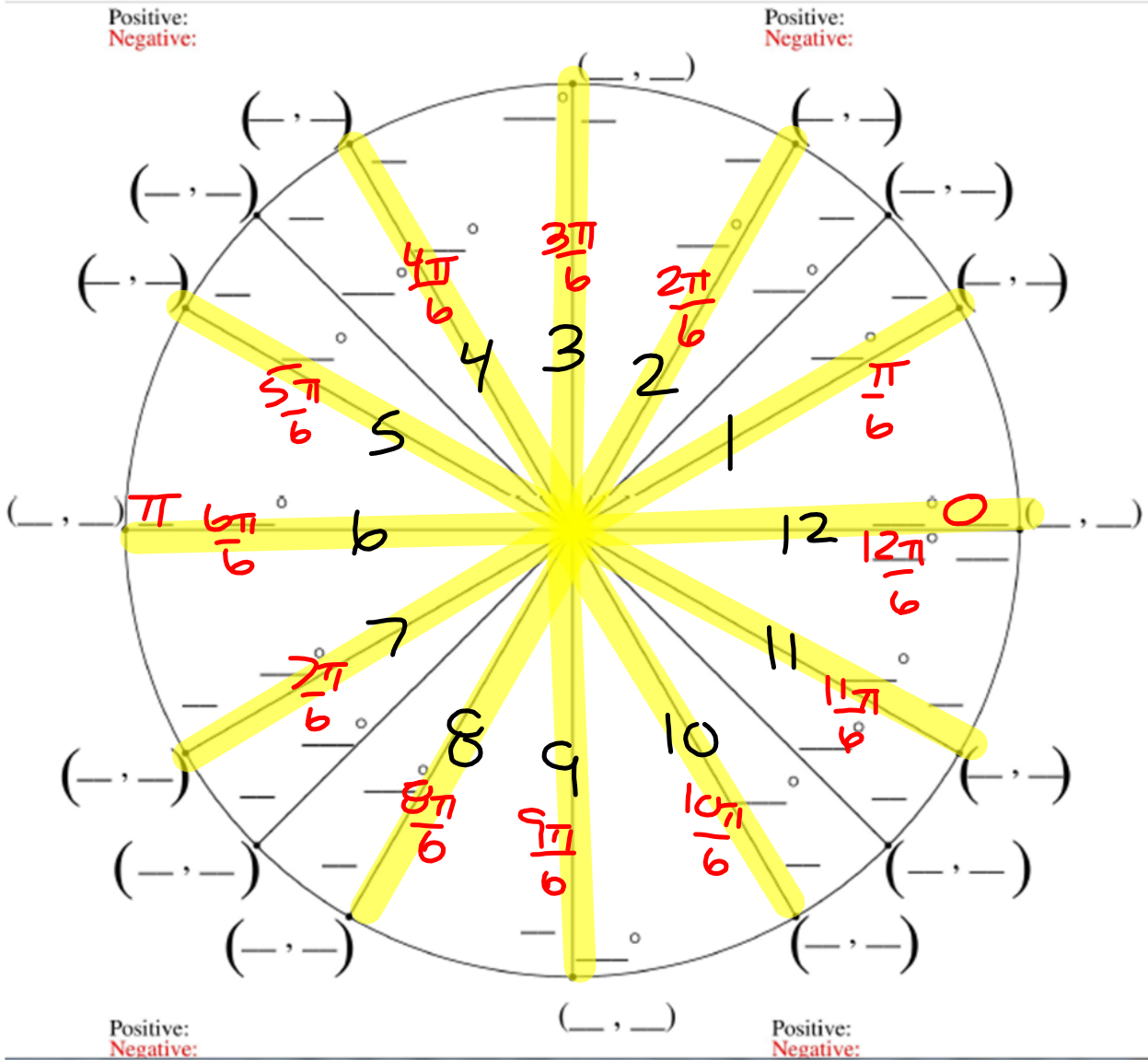


Unit Circle

Name _____

Date: 6-27-2012

Pd. _____

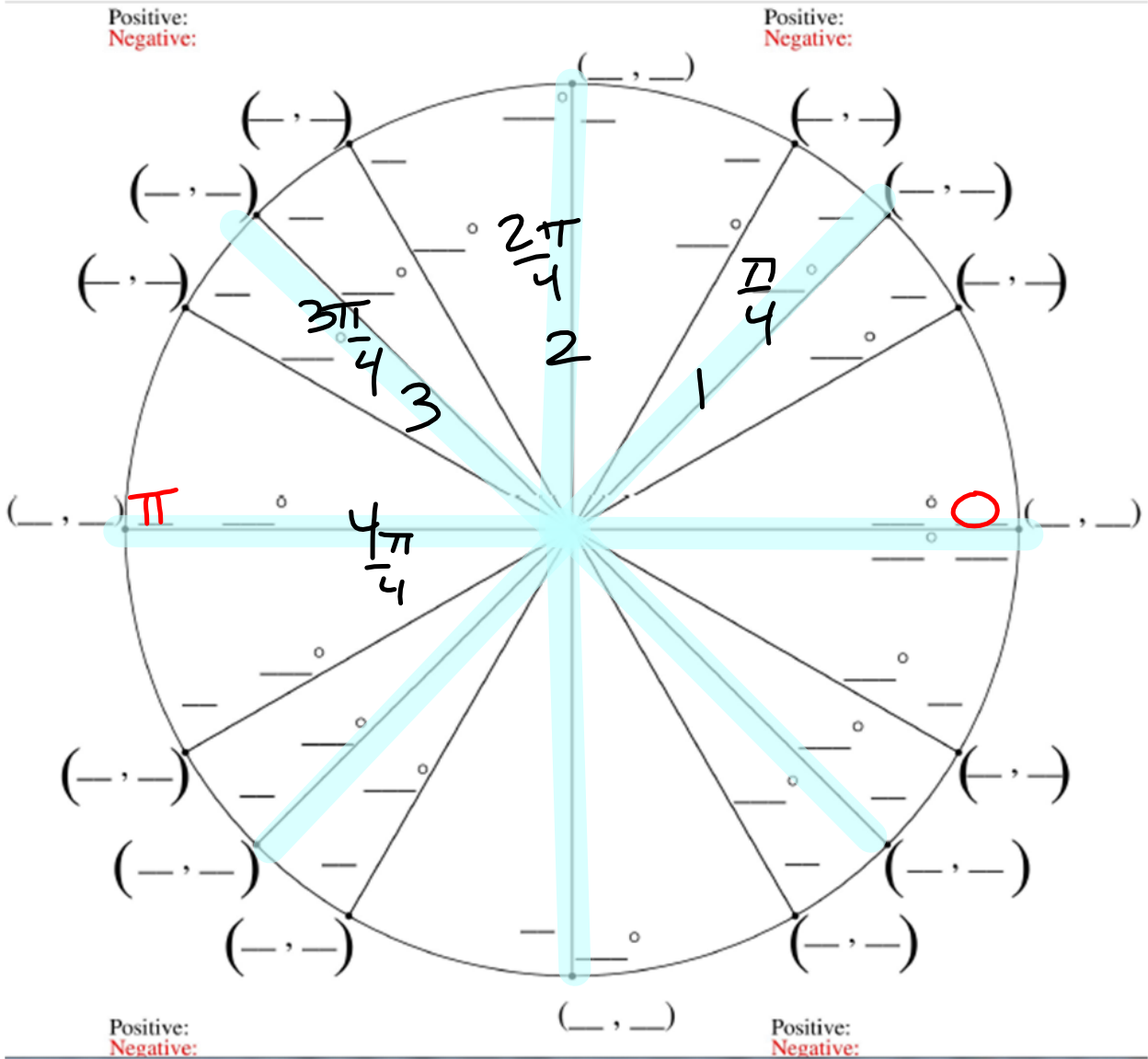


Unit Circle

Name _____

Date: 6-27-2012

Pd. _____

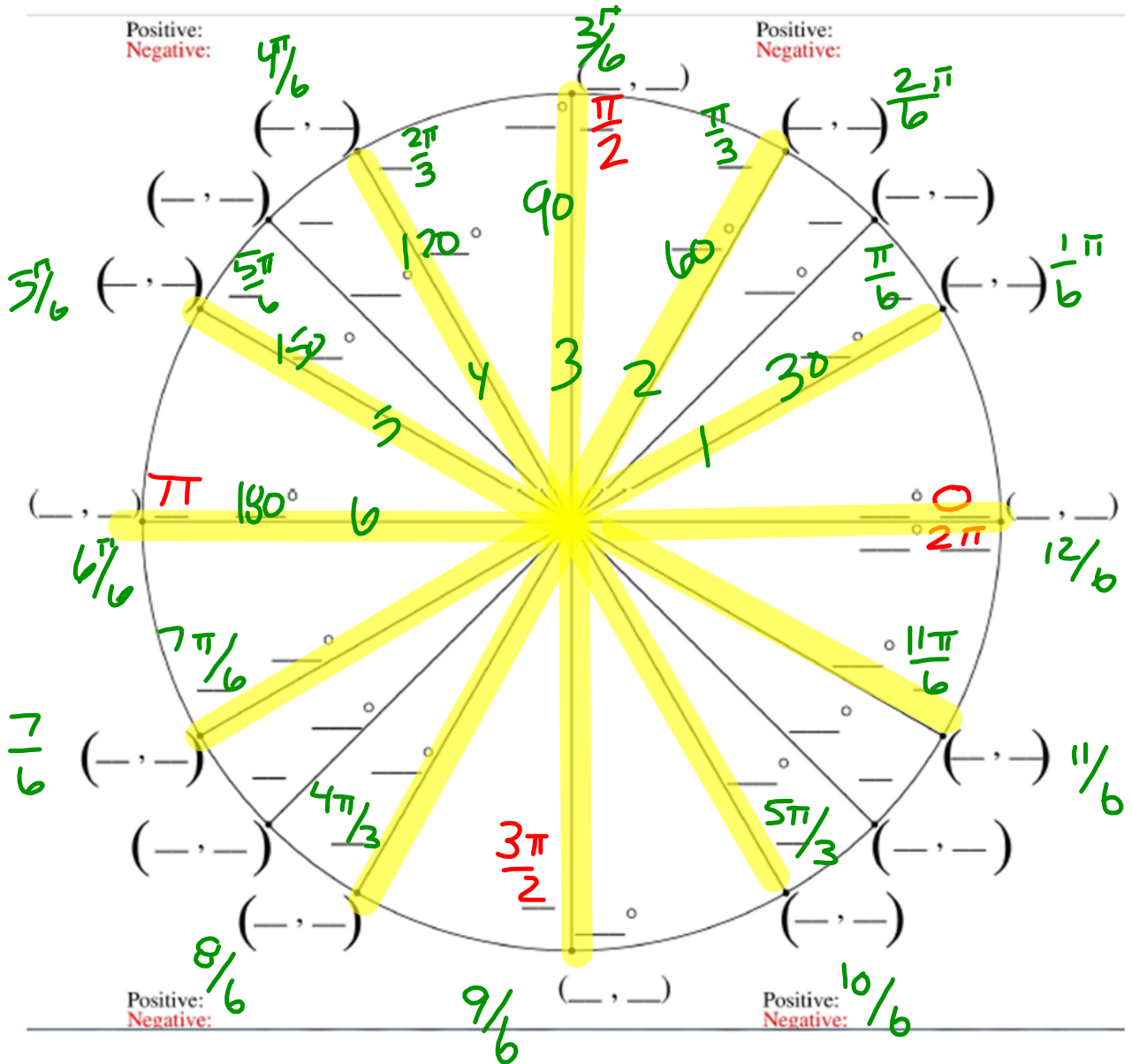


Unit Circle

Name _____

Date: 6-27-2012

Pd. _____

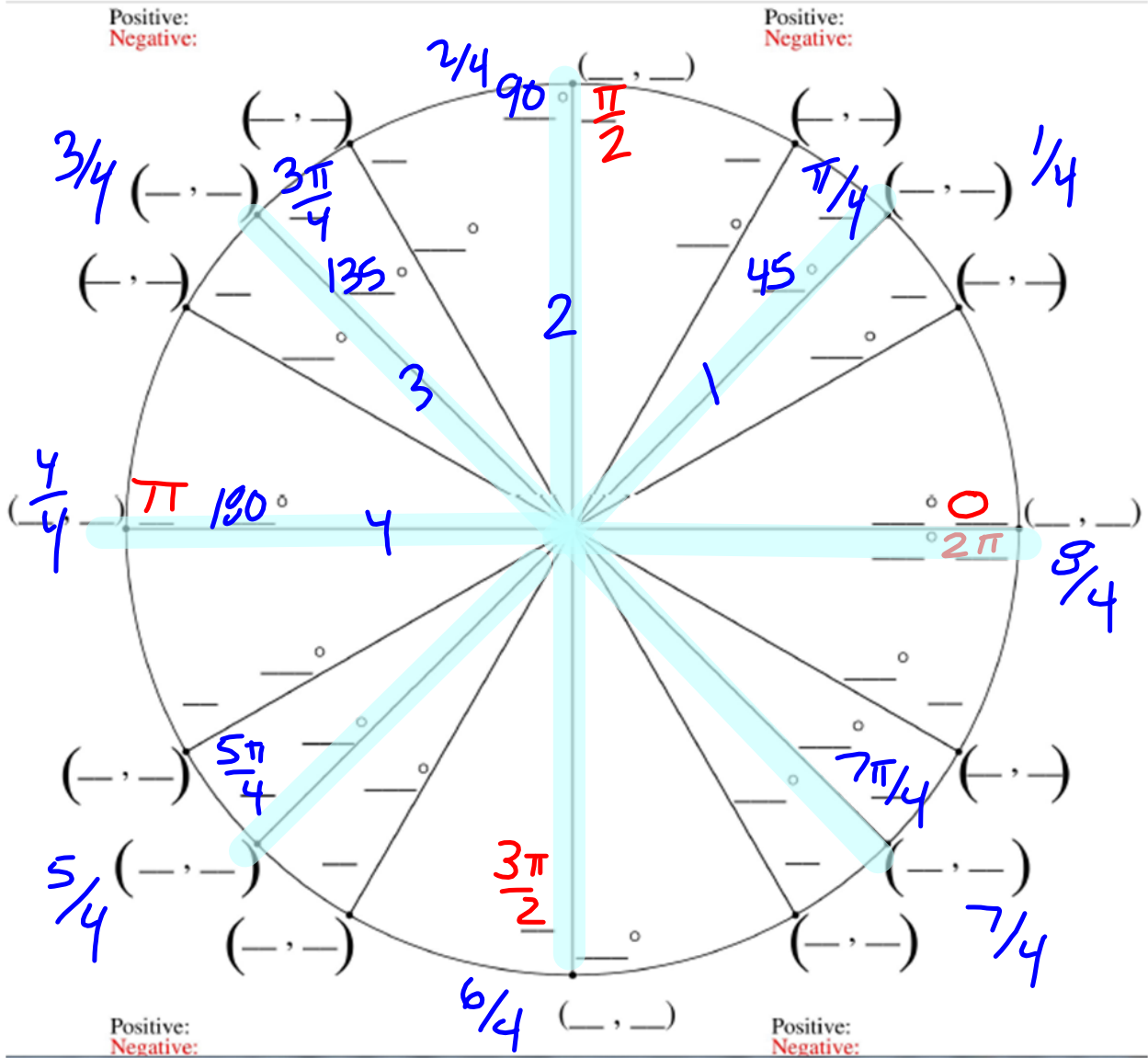


Unit Circle

Name _____

Date: 6-27-2012

Pd. _____

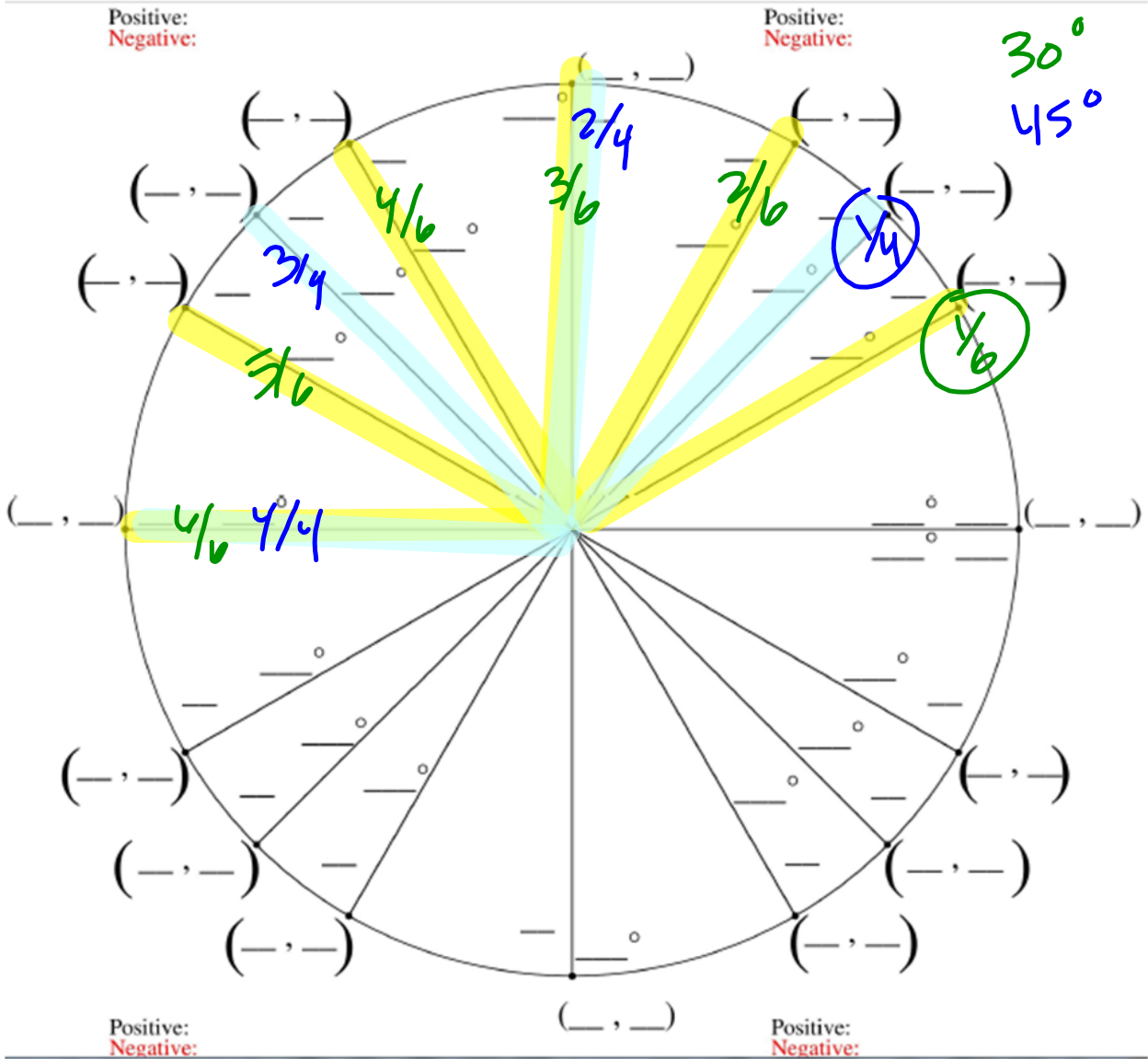


Unit Circle

Name _____

Date: 6-27-2012

Pd. _____

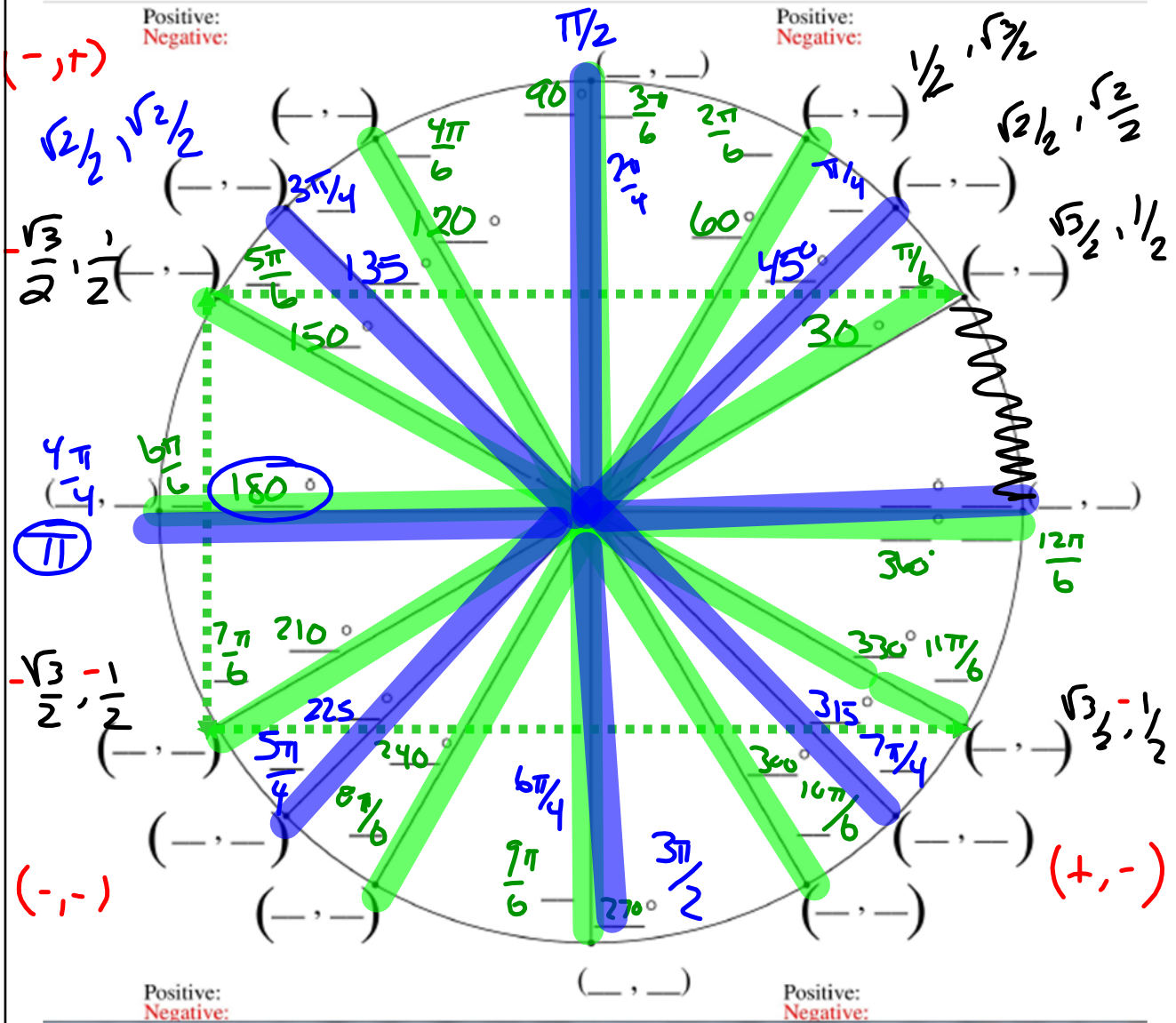


Unit Circle

Name _____

Date: 6-27-2012

Pd. _____



Arc length

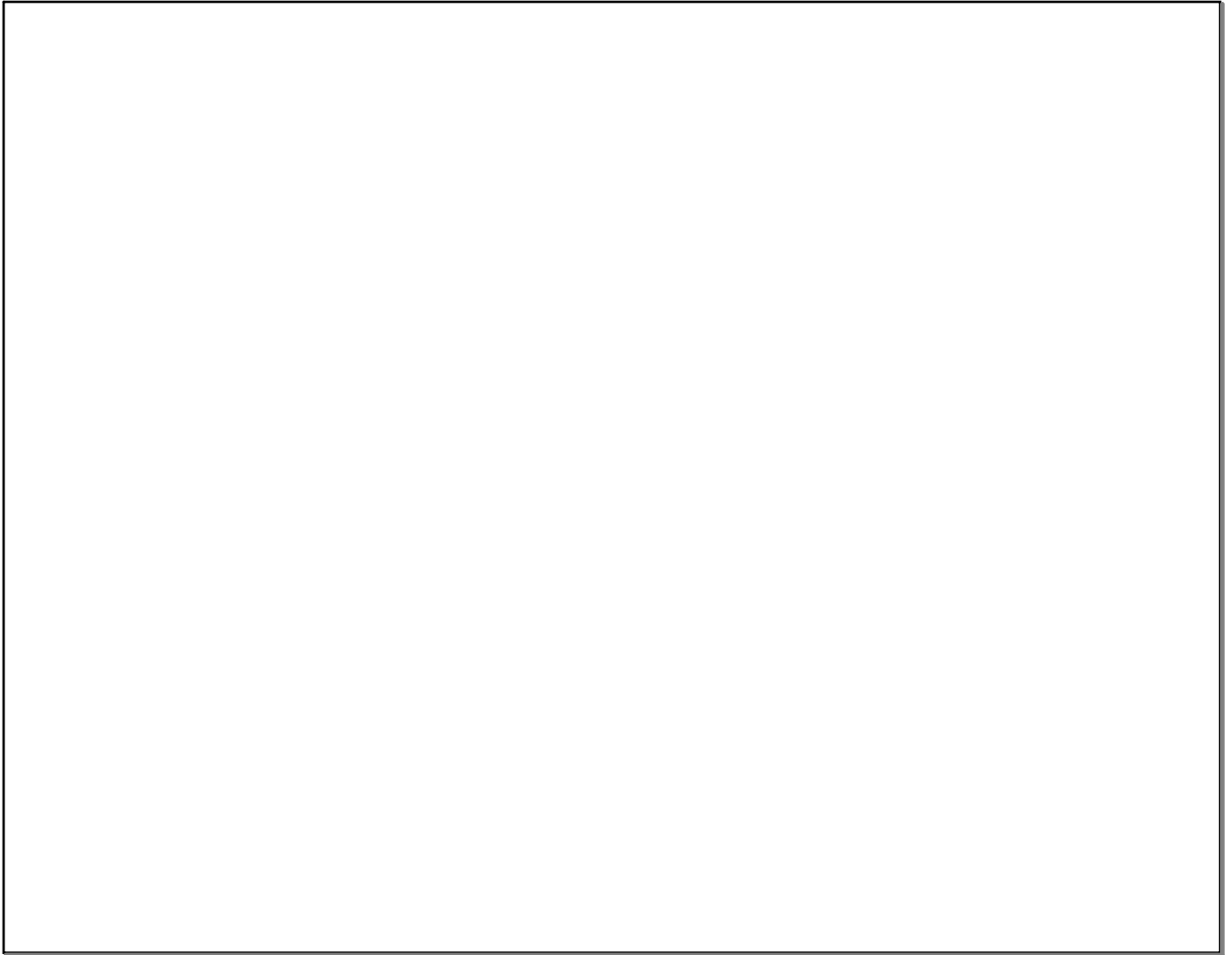
$$\frac{x}{2\pi(r)} = \frac{30^\circ}{360^\circ}$$

$$x(360) = 2\pi(30)$$

$$x = \frac{60\pi}{360} = \frac{\pi}{6}$$

Kia
10,000, - 20,000
pre-approved.

14.93%

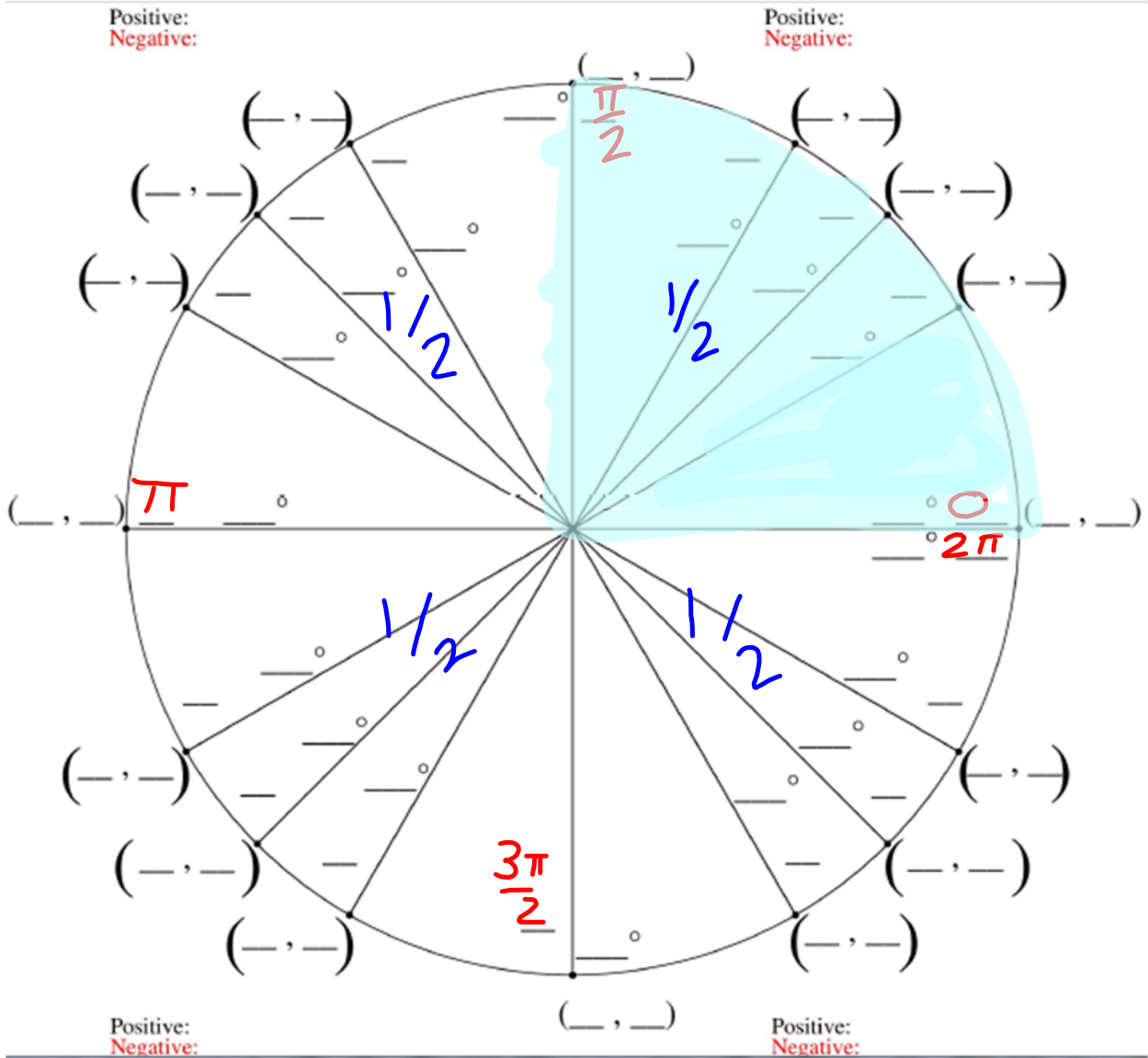


Unit Circle

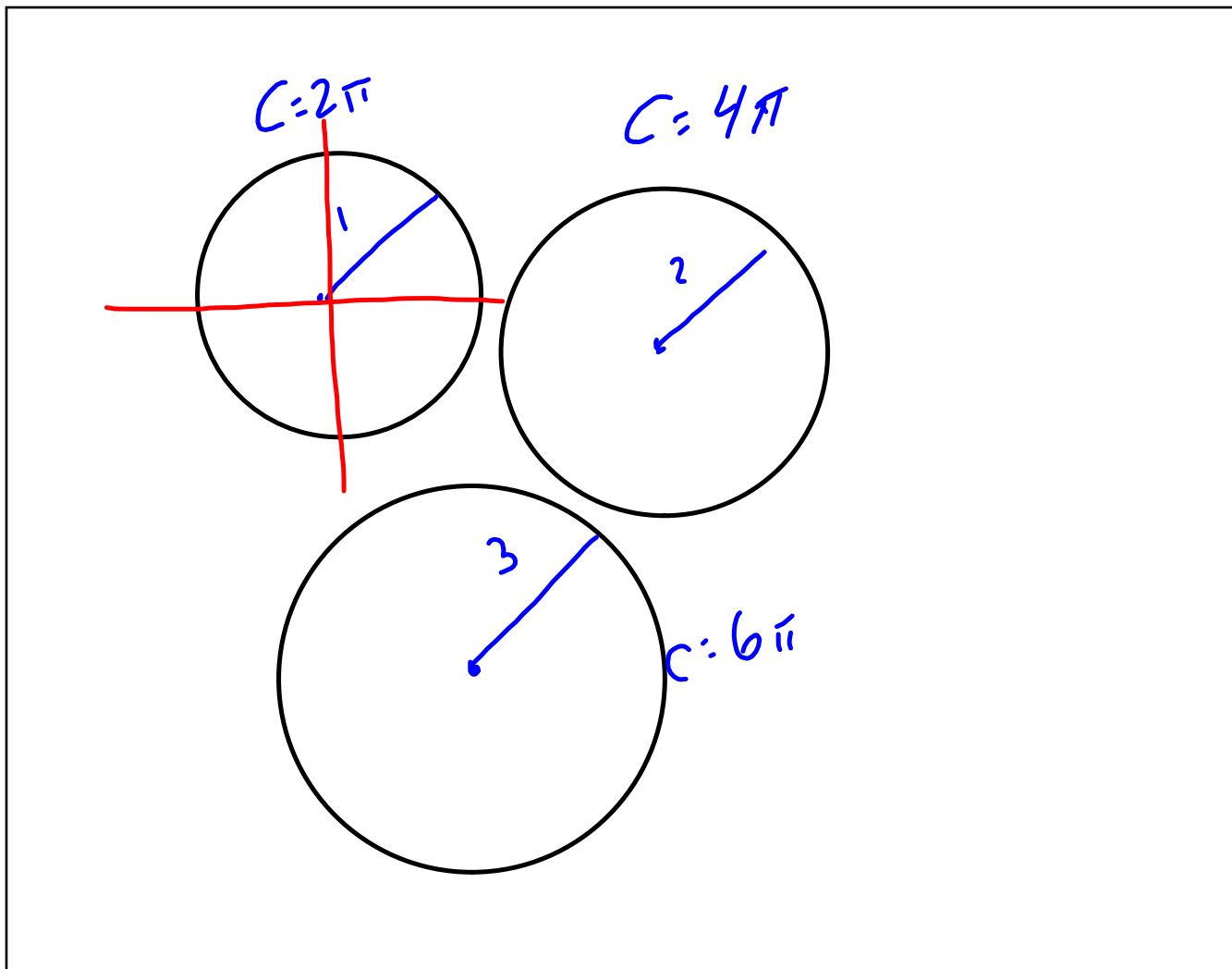
Name _____

Date: 6-27-2012

Pd. _____



$$\frac{1}{2}x = \frac{x}{2}$$
$$\frac{1}{2}\pi = \frac{\pi}{2}$$



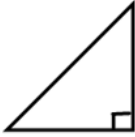
Notes Organizer

Unit 2 - Triangle Trigonometry

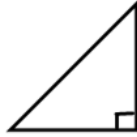
Fall 2012

Write out the Trig Ratios _____

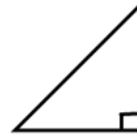
Sin $\theta =$ ____



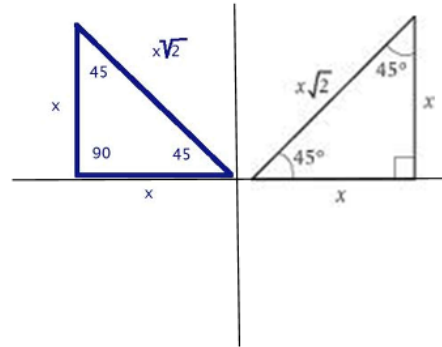
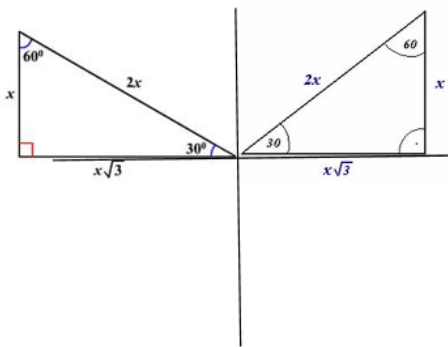
cos $\theta =$ ____



tan $\theta =$ ____

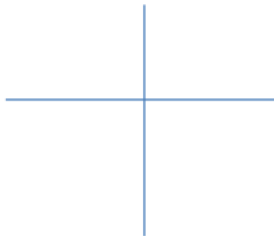


Special Right Triangle



Making Triangles on a Coordinate Plane

Triangle at (3,6)



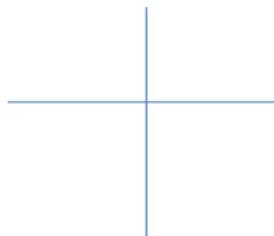
Hypotenuse = ____

Sin $\theta =$ ____

cos $\theta =$ ____

tan $\theta =$ ____

Triangle at (-3,6)



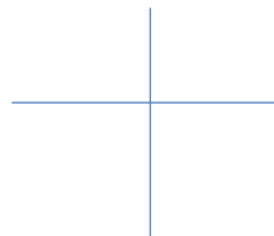
Hypotenuse = ____

Sin $\theta =$ ____

cos $\theta =$ ____

tan $\theta =$ ____

Triangle at (-3,-6)



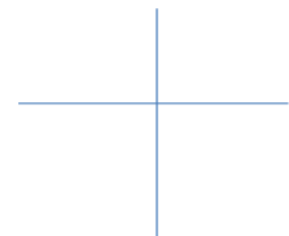
Hypotenuse = ____

Sin $\theta =$ ____

cos $\theta =$ ____

tan $\theta =$ ____

Triangle at (3,-6)



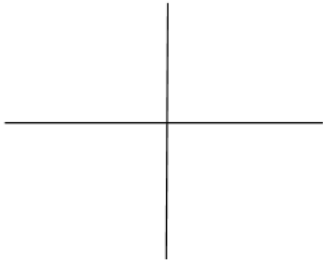
Hypotenuse = ____

Sin $\theta =$ ____

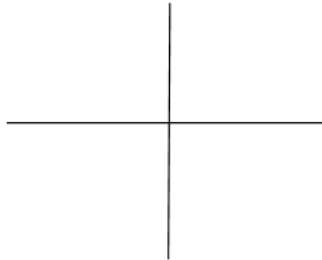
cos $\theta =$ ____

tan $\theta =$ ____

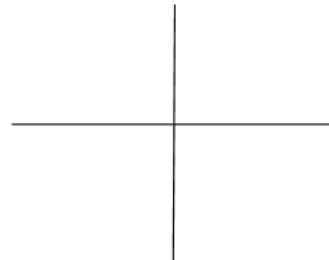
Sketch a 60° right triangle in Quad. I



Sketch a 60° right triangle from the x-axis in Quad. II



Sketch a 60° right triangle from the x-axis in Quad. III



What is the total degree of this angle between 0° and 360° ? _____

What is the total degree of this angle between 0° and 360° ? _____

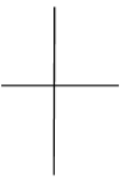
What is the total degree of this angle between 0° and 360° ? _____

Which angle above is the reference angle? _____ Why? _____

Which angle above is the co-terminal angle? _____ Why? _____

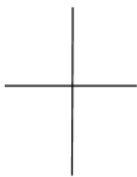
Draw the angle following angle measures on a coordinate plane.

250°



Quad __

-70°



Quad __

410°



Quad __

-310°



Quad __

-540°



Quad __

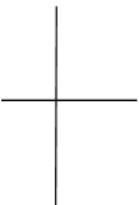
-220°



Quad __

Plot the following points, make a line from the origin to the point, make a right triangle, and then find all side lengths and angle measure.

(3, 4)

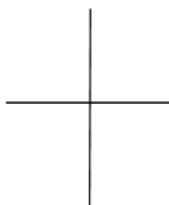


Sin θ = ____

Cos θ = ____

Tan θ = ____

(-2, 7)

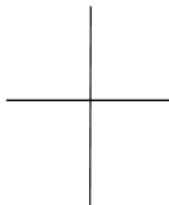


Sin θ = ____

Cos θ = ____

Tan θ = ____

(5, 1)



Sin θ = ____

Cos θ = ____

Tan θ = ____

(-3, -2)



Sin θ = ____

Cos θ = ____

Tan θ = ____

(8, -5)



Sin θ = ____

Cos θ = ____

Tan θ = ____

What is the Pythagorean Theorem? _____ When can you use this? _____

How do you find the sides of a right triangle? 1. _____ 2. _____

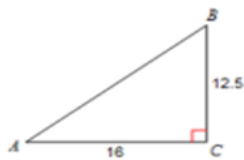
How do you find the angle measures of a right triangle? _____

What does this stand for?

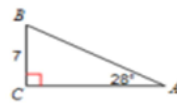
SOHCAHTOA

Solve each triangle. Round answers to the nearest tenth.

1)



2)



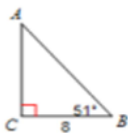
3)



4)



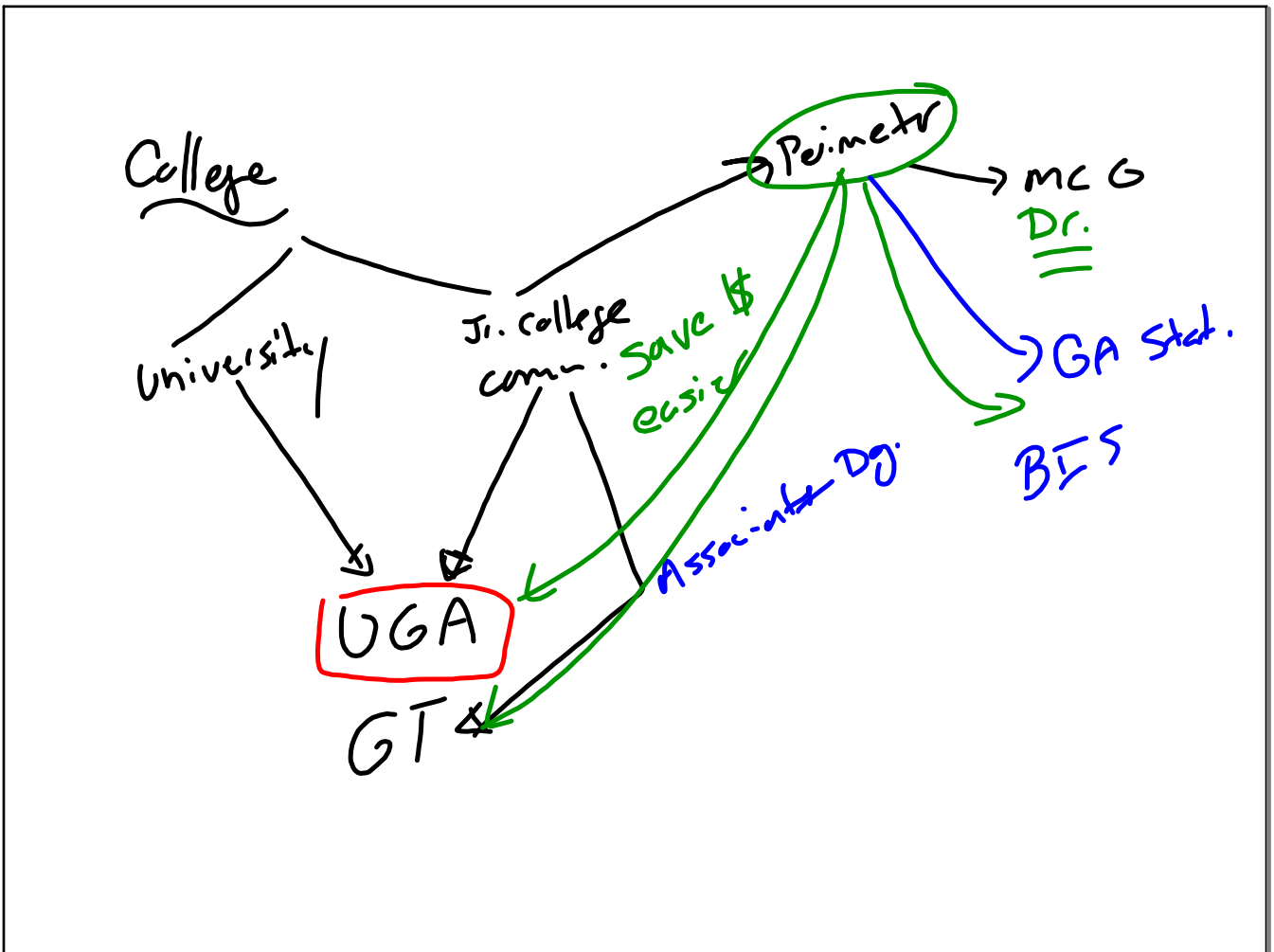
5)

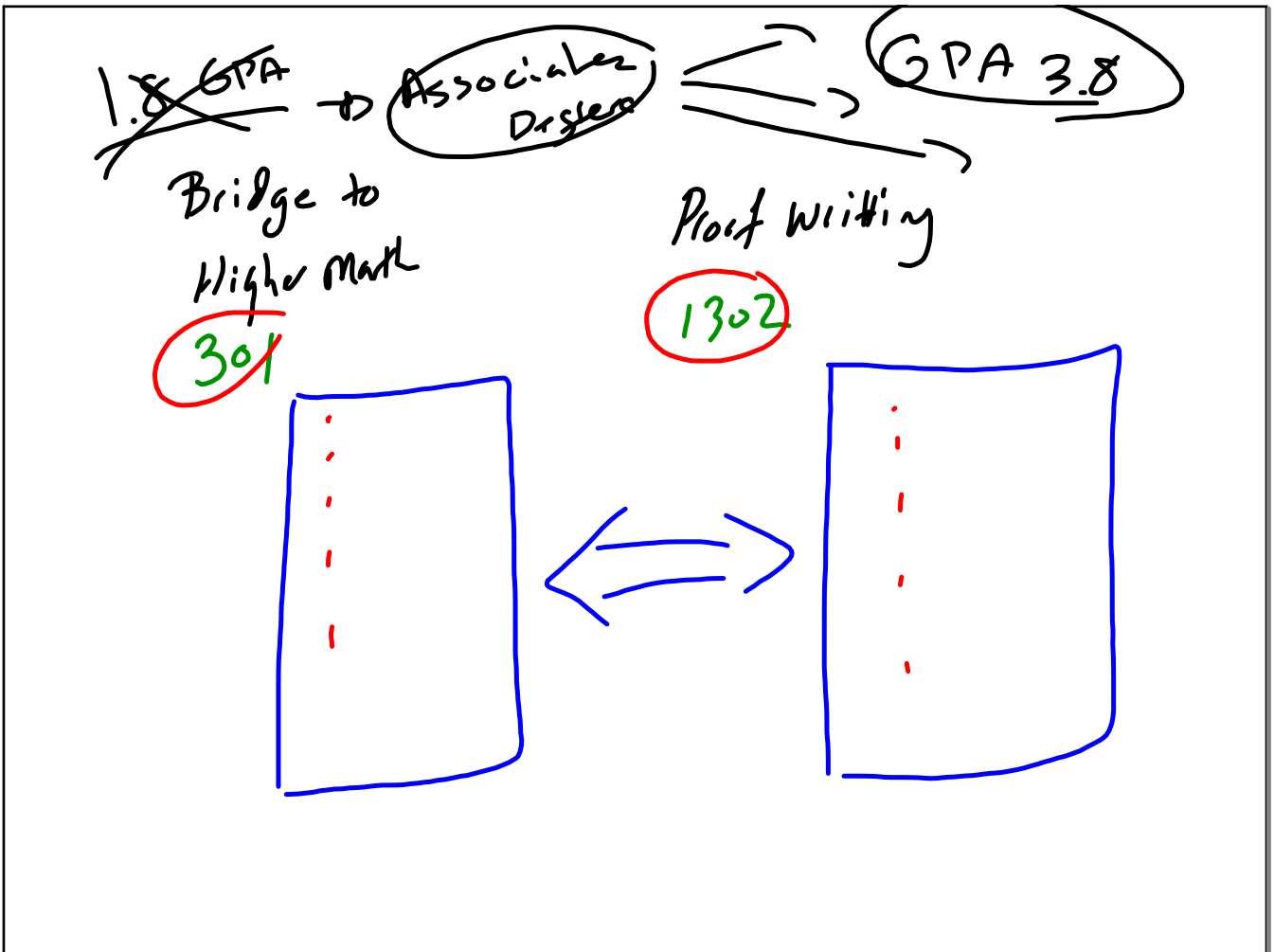


6)



Make 30° , 45° , 60° triangles around the coordinate plane using all quadrants (Quad I – IV).





Degree \Leftrightarrow Degree

