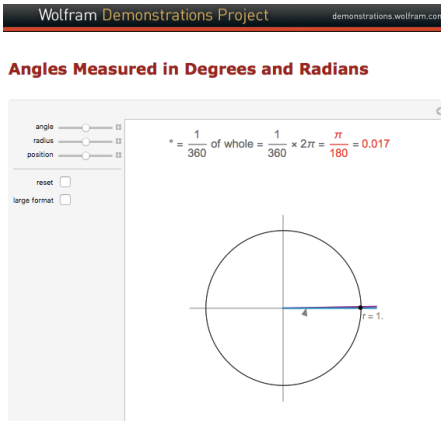
Teach directly question 75 and 76



One Tab

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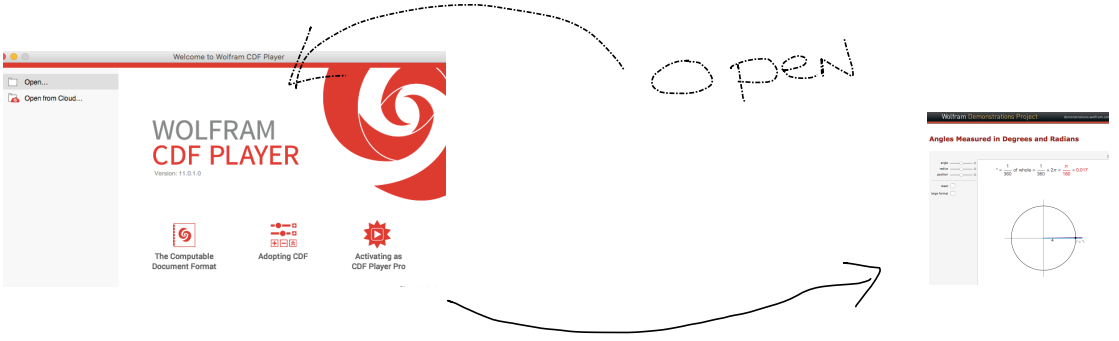


https://samjshah.com/2013/11/26/radians/ new

https://www.geogebra.org/student/m59882

Warm Up ← in your notes

1. Draw & label:

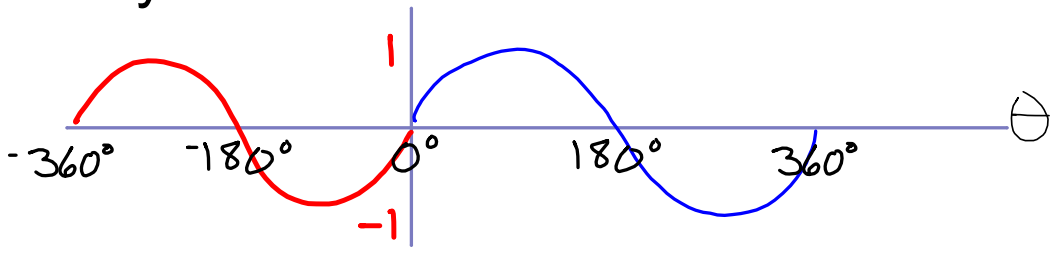
---2 cycles of the sine function, from -360° to 360°.

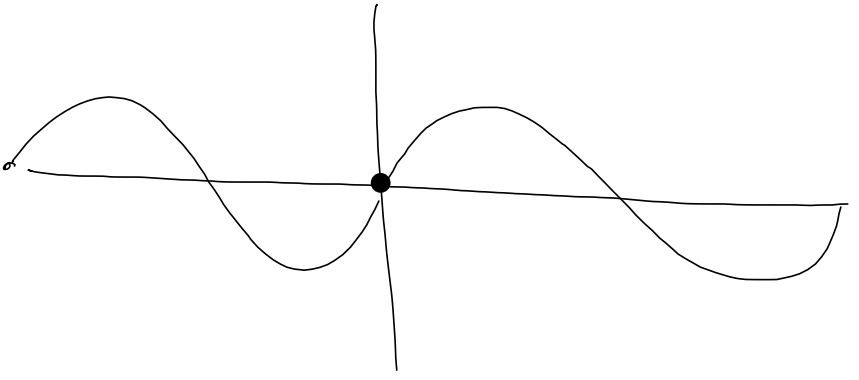
---Draw one cycle of the cosine function.

2. Without using your calculator, find an angle whose cosine value is the same as the one produced by the cosine of 120°.

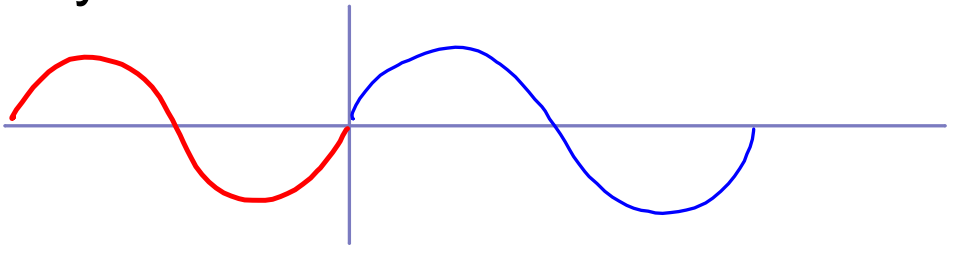
HW Help

2 cycles of the sine function.

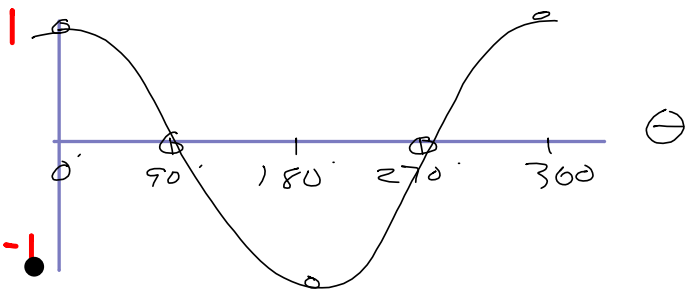


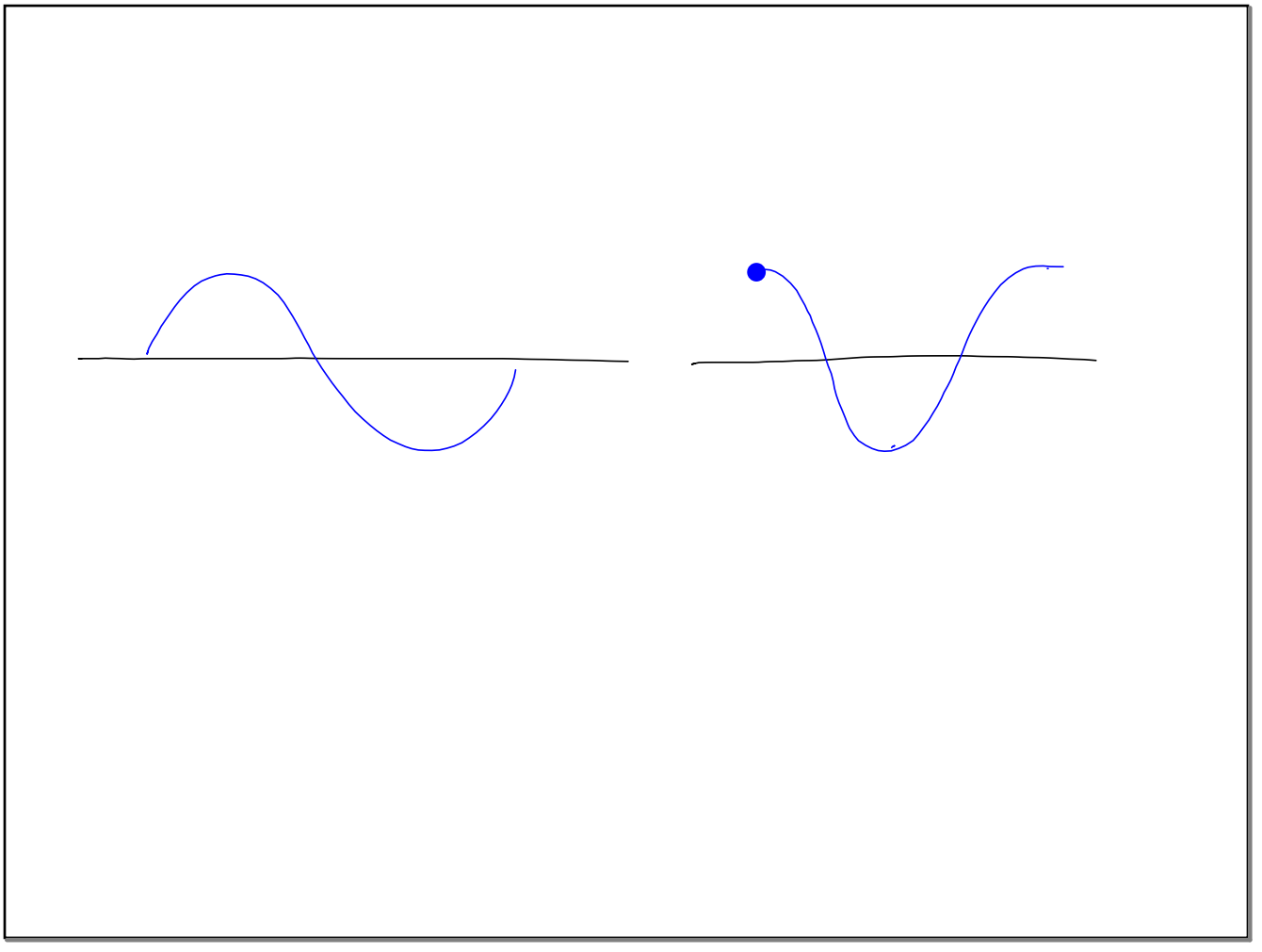


2 cycles of the sine function.



Draw one cycle of the cosine function.

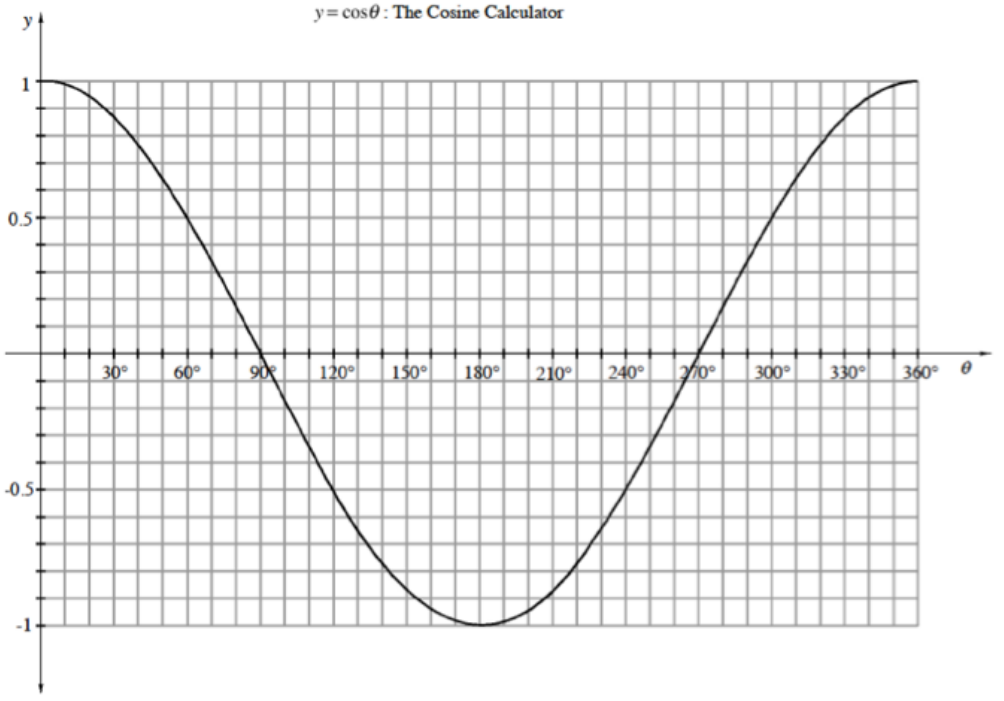




2. Without using your calculator, find an angle whose cosine value is the same as the one produced by the cosine of 120°.

HW Questions

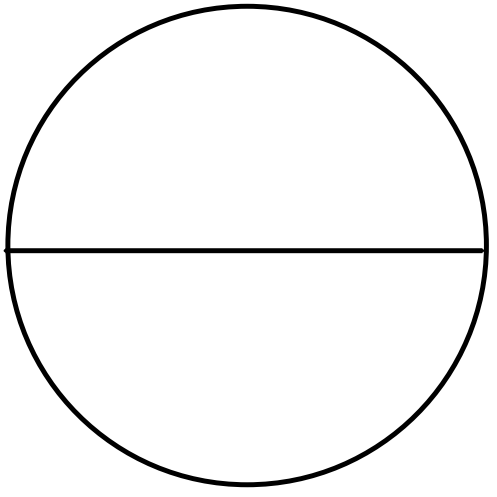
52


$y = \cos\theta$: The Cosine Calculator
y
1
0.5
-0.5
-1
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°
360°
θ

62

Screamer breaks

53 <u>horizontal</u> feet from the vertical support pole
What is the angle of rotation ?



(63) a) (-, +)

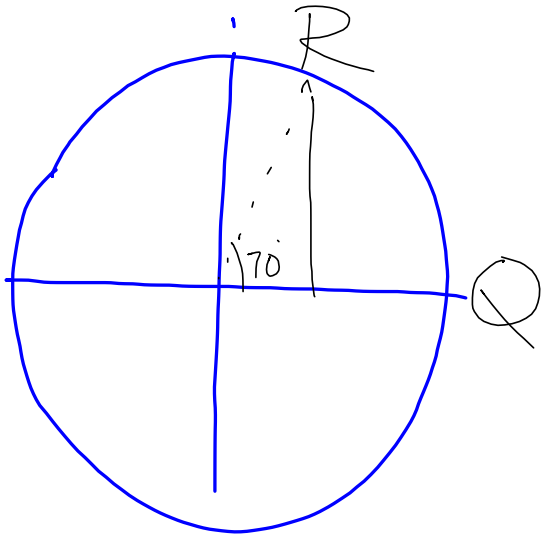
b) one of 1

c) (-, -)

d) (-.9, .4)

(.8, .9) possible ?

(64)



(a) R (.342, .9397)

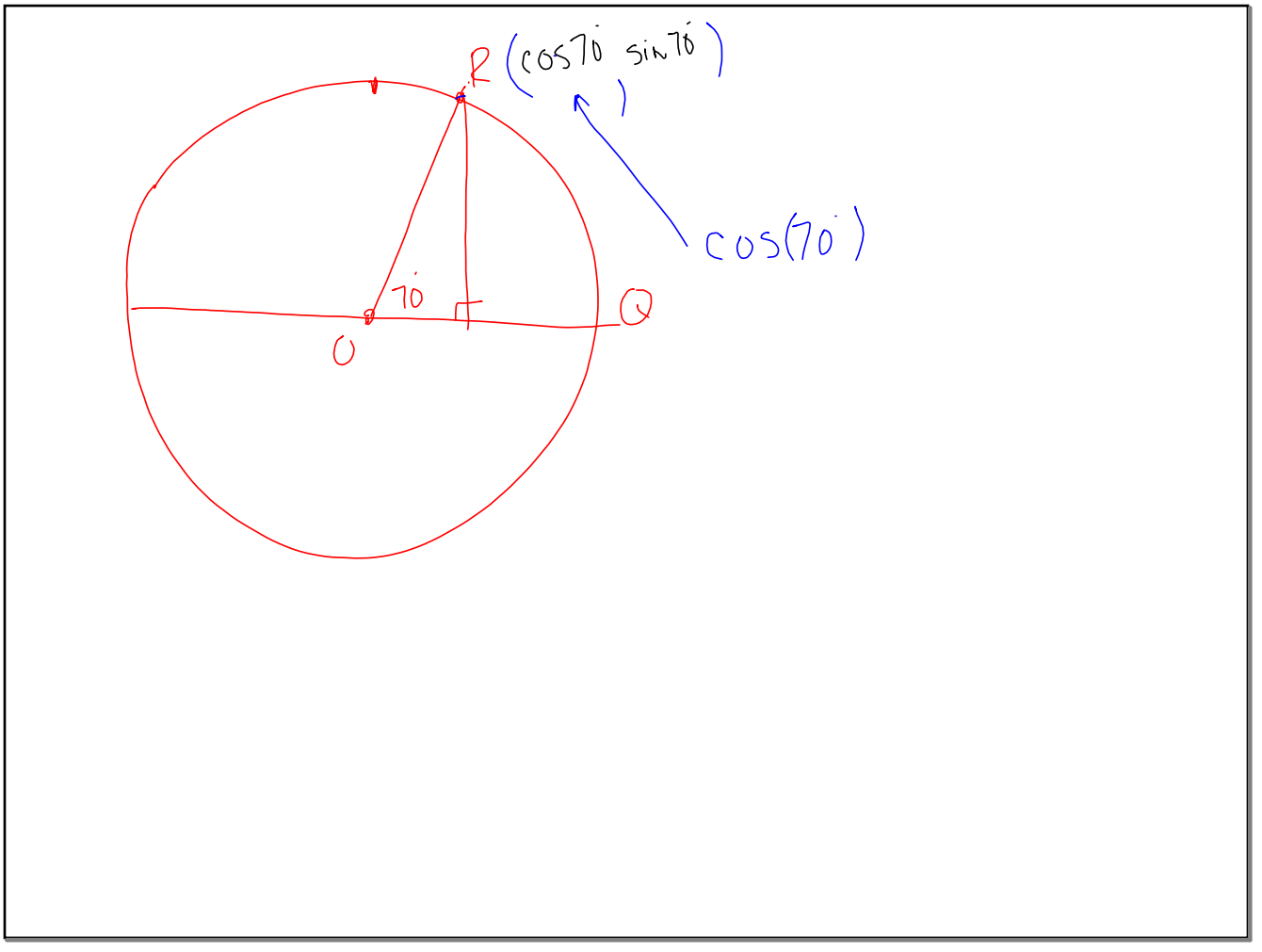
(b) ~~Exact~~ (sin 70°, cos 70°)

(c) Does the Pyth Identity work?

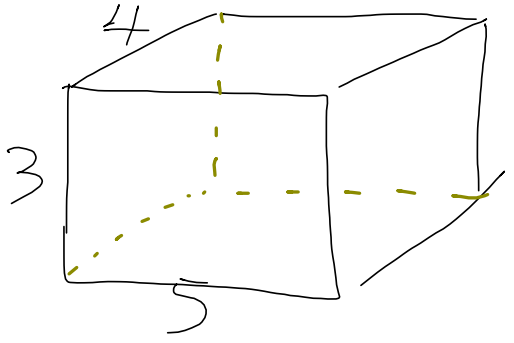
$.117 + .883 = 1$

$1 = 1$

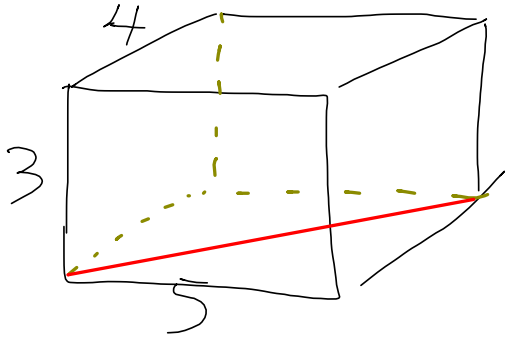
(68) b) $\frac{3}{x+1} + \frac{4}{x} = 2$


P
(cos70 sin70)
cos(70)
70
T
Q
O

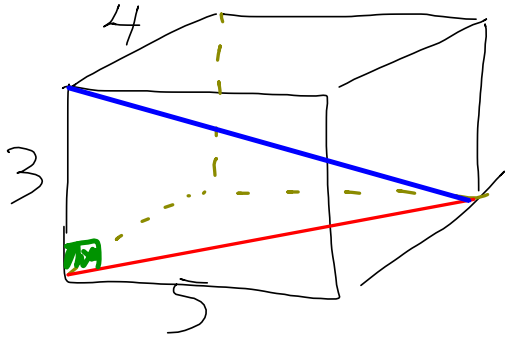
69

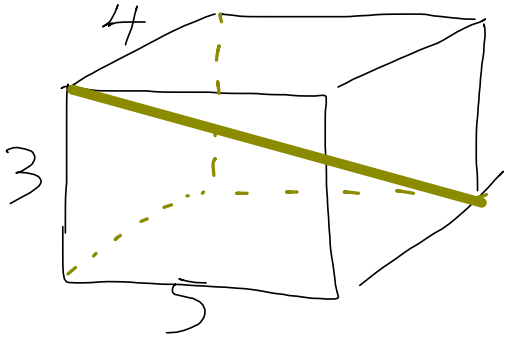


69



69





shortcut

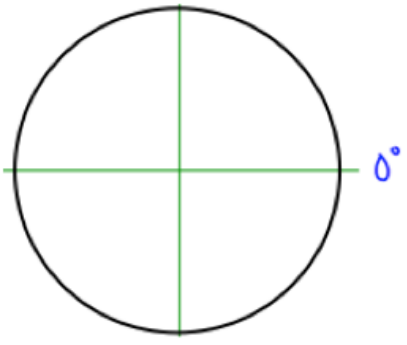
$$d = \sqrt{3^2 + 4^2 + 5^2}$$

62

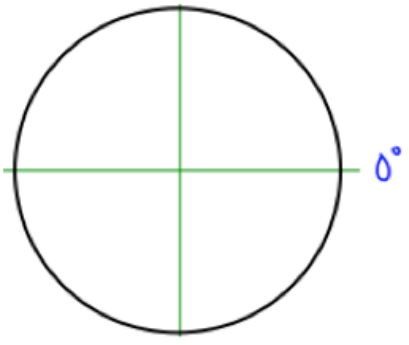
7-62. Shinna was riding *The Screamer* when it broke down. Her seat was 53 horizontal fe from the central support pole. What was her seat's angle of rotation? How can you tell?

c. A negative cosine and a negative sine.

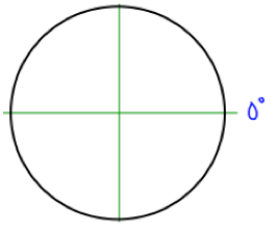
a. A positive cosine and a negative sine.



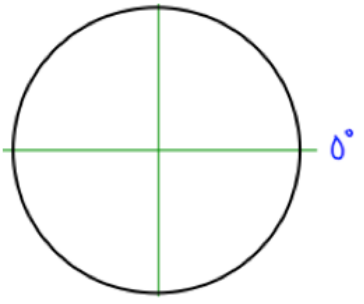
b. A sine of −1.



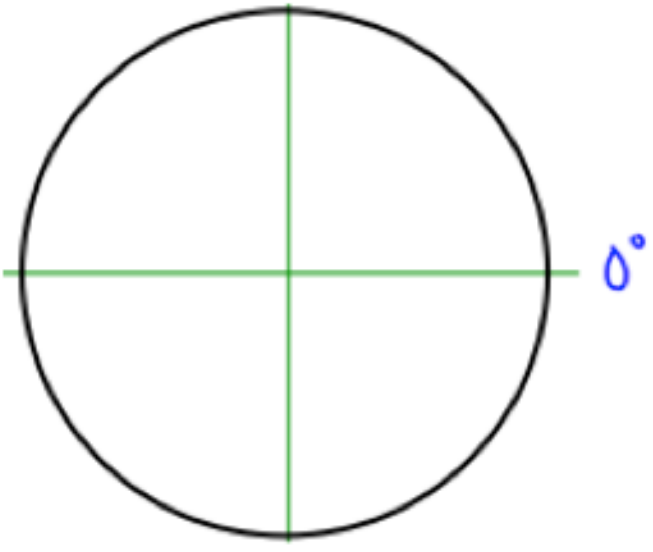
c. A negative cosine and a negative sine.



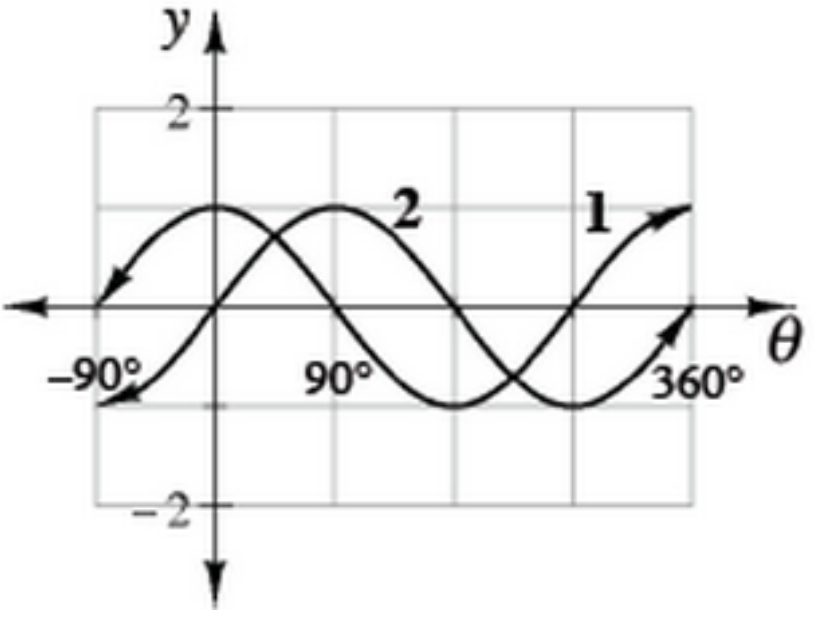
d. A cosine of about –0.9 and a sine of about 0.4.



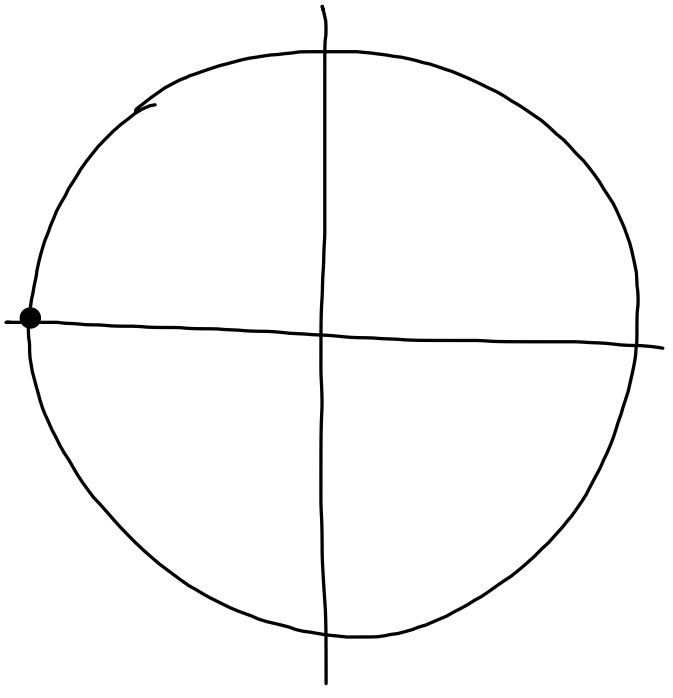
e. Could an angle have a sine equal to 0.9 and cosine equal to 0.8? why not.

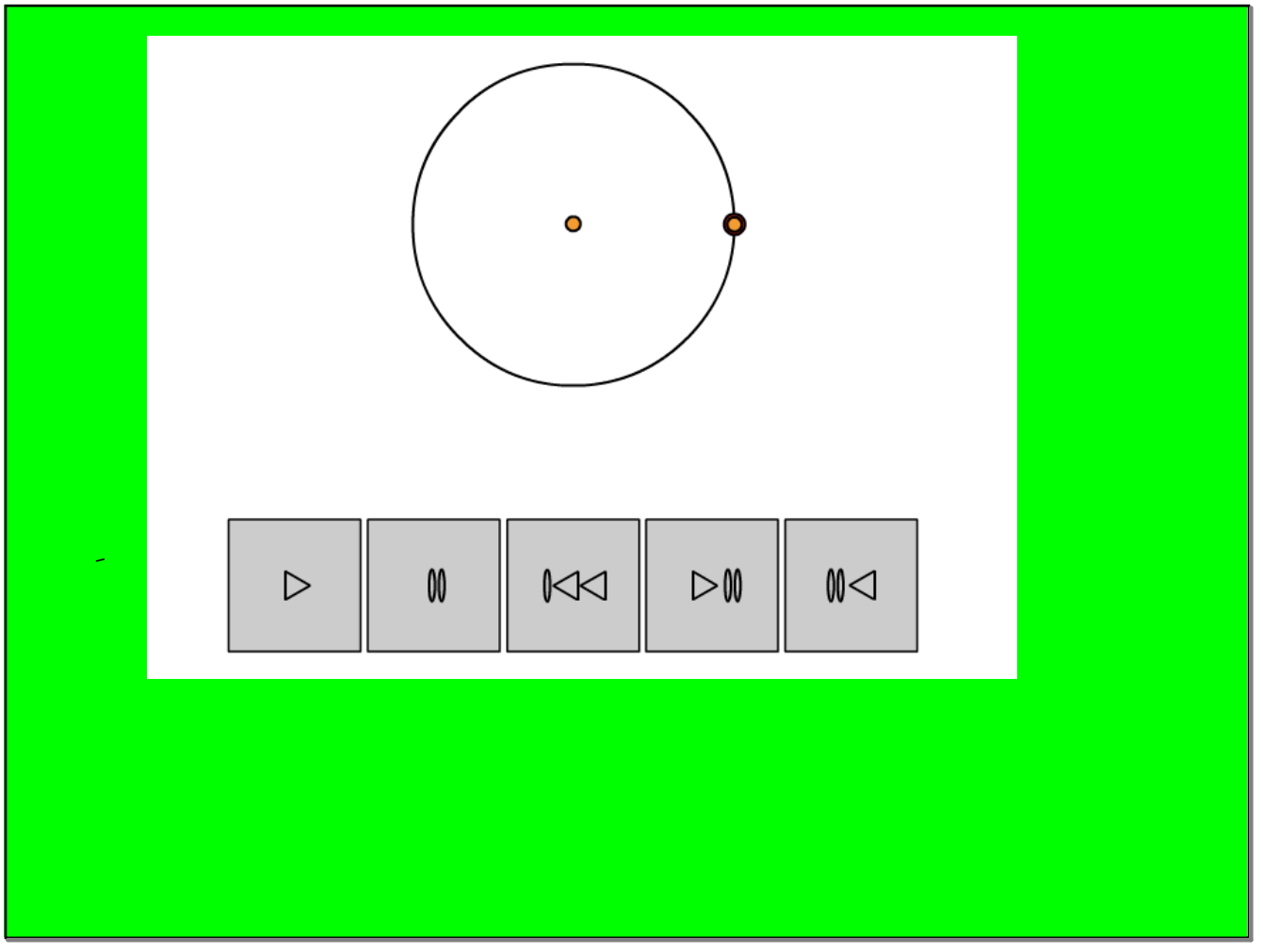


65



66 $y = \cos x$ $y = -1$

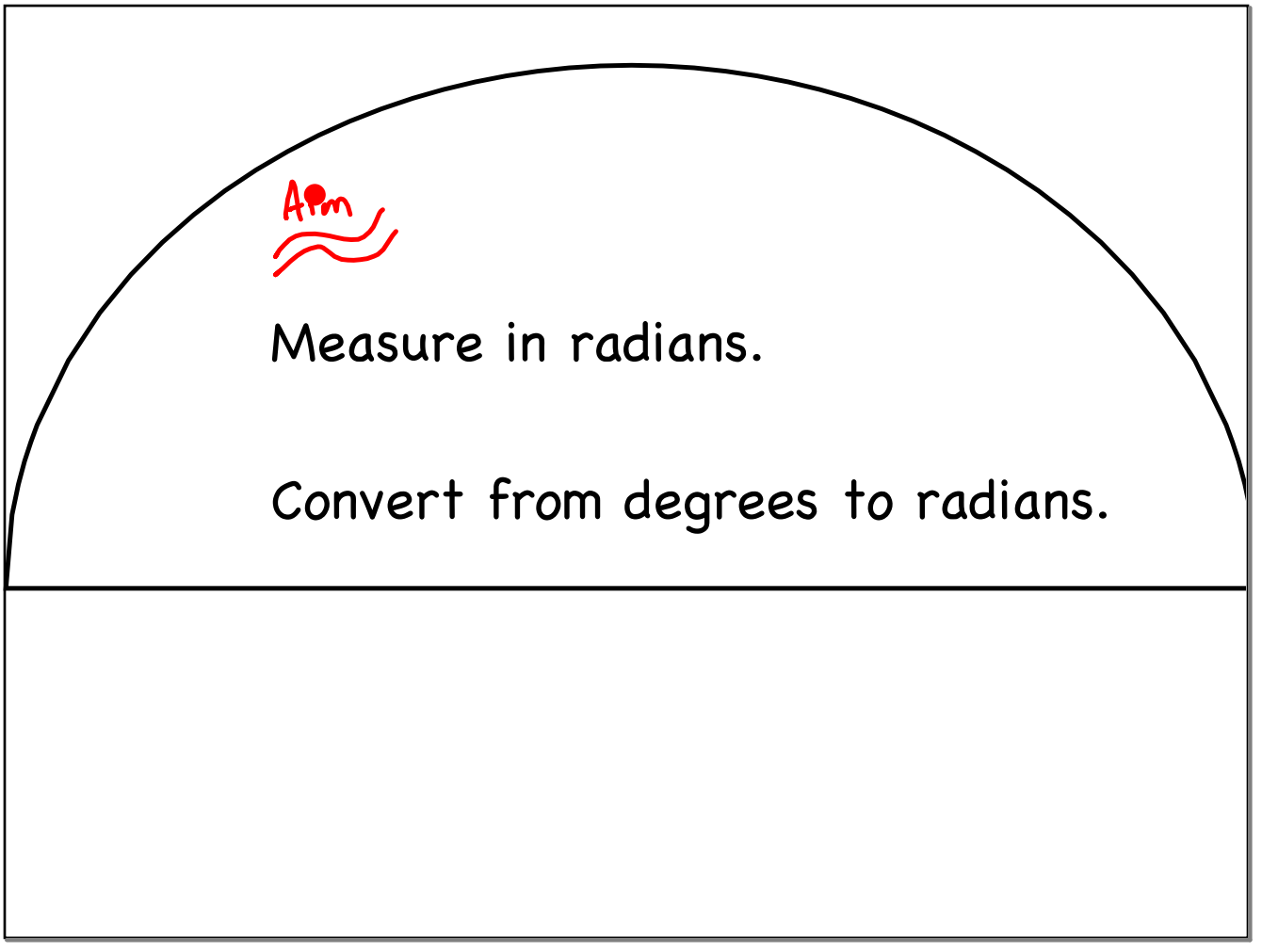




What word are you reminded of when see the word.....

"Radian"

read the first two paragraphs page 332 at the beginning of section 7.1.5

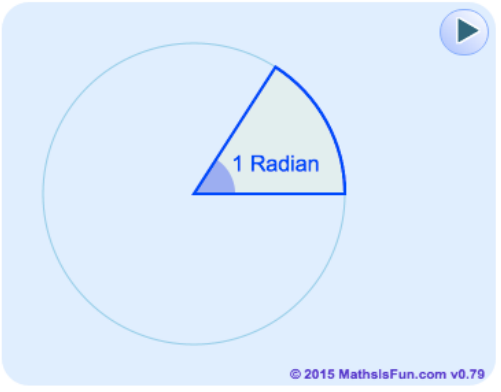

Apm
Measure in radians.
Convert from degrees to radians.

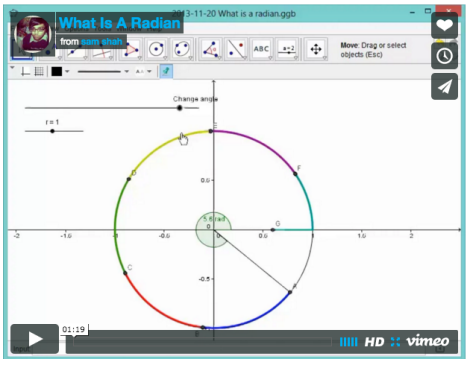
After so many years of using degrees there is a natural reluctance to use other measures.

but...

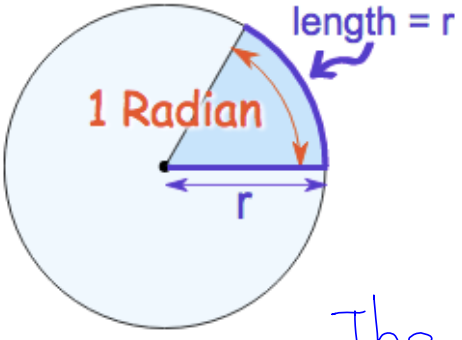
The working unit of circular function is the radian, not the degree.

Visualize a radian


1 Radian
© 2015 MathsIsFun.com v0.79


What Is A Radian
from sam shah
Change angle
HD vimeo

Radian Definition (Notes)



A **radian** is defined as an angular measure such that.....

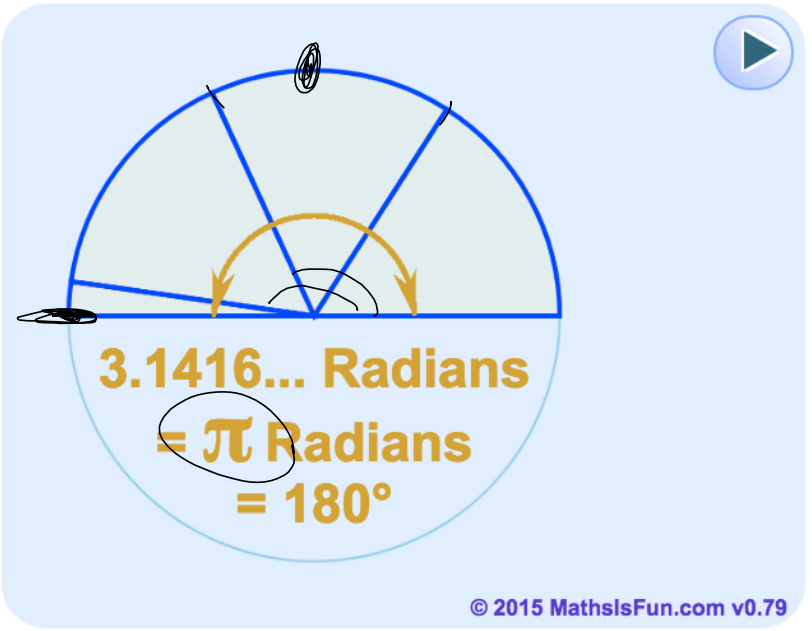
an arc length of one radius on a circle of radius one produces an angle with measure one radian. .

The arc length is equal to the angle

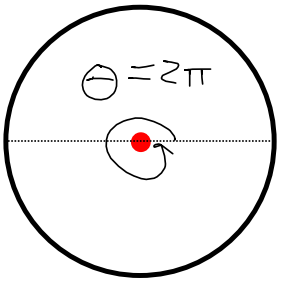
$C = 2\pi r$

if $r = 1$

$C = 2\pi$


3.1416... Radians
= π Radians
= 180°
© 2015 MathsIsFun.com v0.79

There are 2π radians around a circle, exactly.



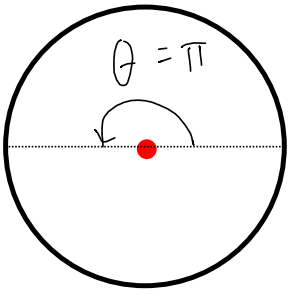
360°

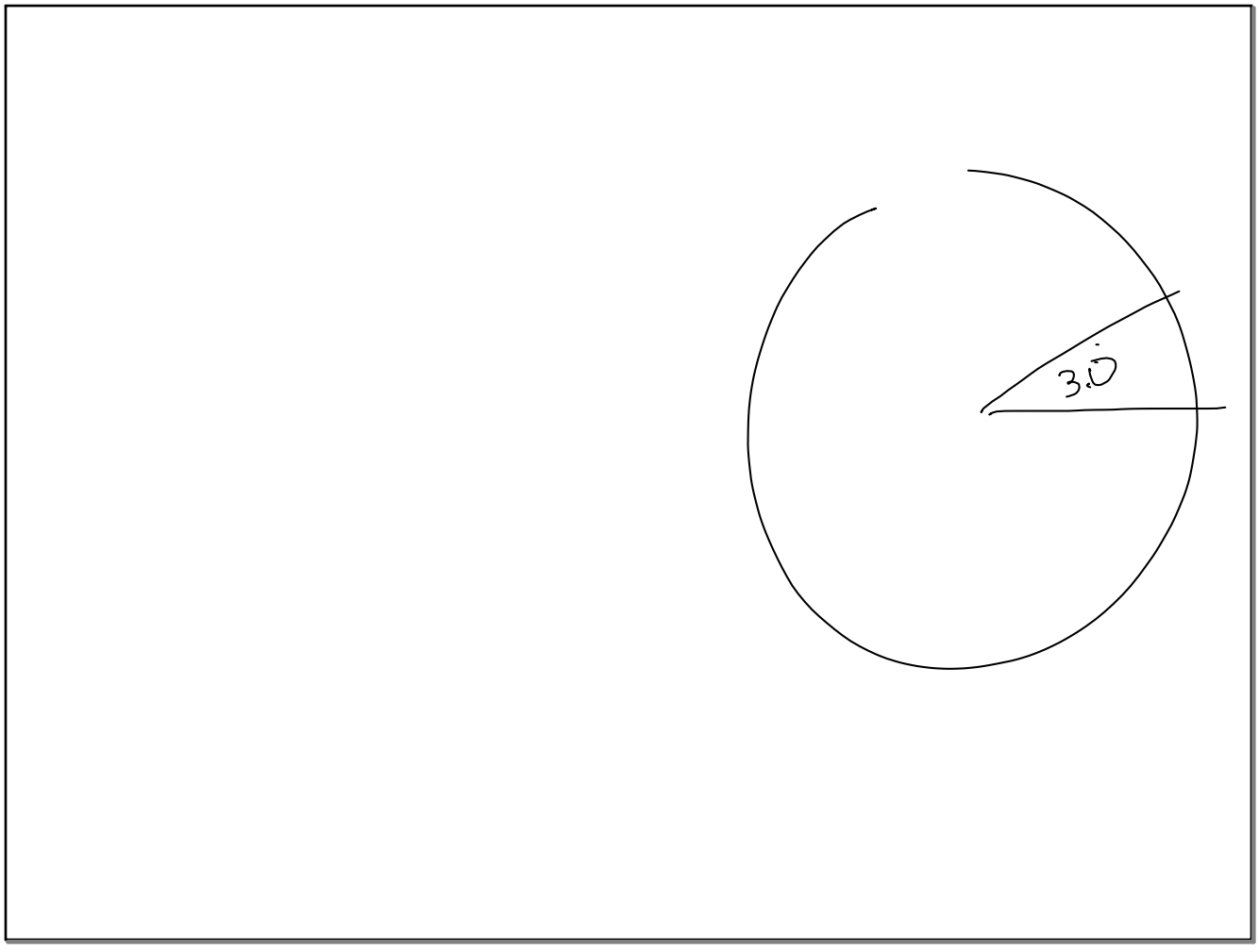
$\cos(60^\circ)$

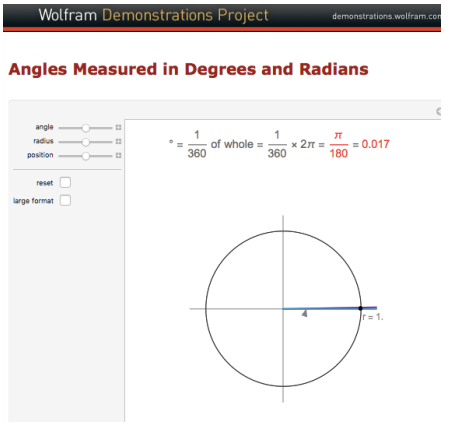
$\cos(3)$

$\cos(\pi)$

There are π radians <u>half way</u> around a circle.




3.0


Wolfram Demonstrations Project
demonstrations.wolfram.com
Angles Measured in Degrees and Radians
angle
radius
position
reset
large format
° = 1/360 of whole = 1/360 × 2π = π/180 = 0.017
r = 1.

IF you have a 30 degree angle in a circle, and the circle gets enlarged proportionally .....does an angle change ?

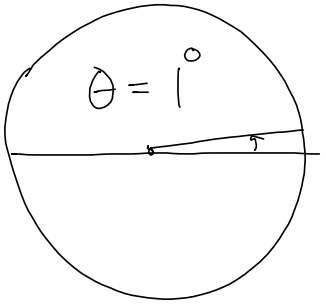
Wolfram cdf

Drawing Radians

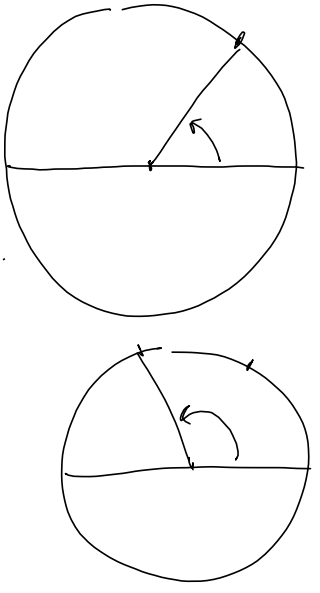
7-75

page 334

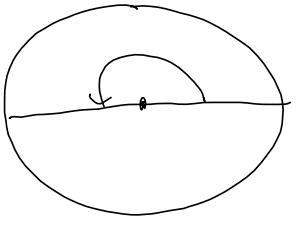
a. 1 degree

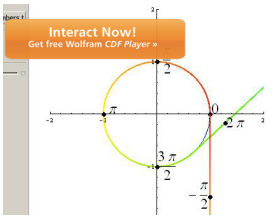


b. 1 radian

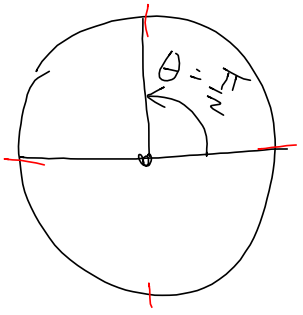


c. π radians

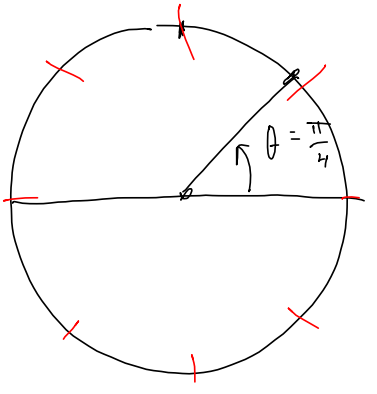




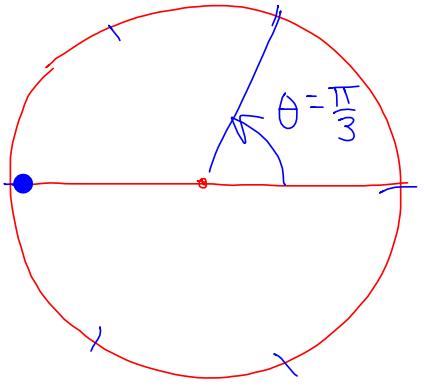
d. $\frac{\pi}{2}$ radians



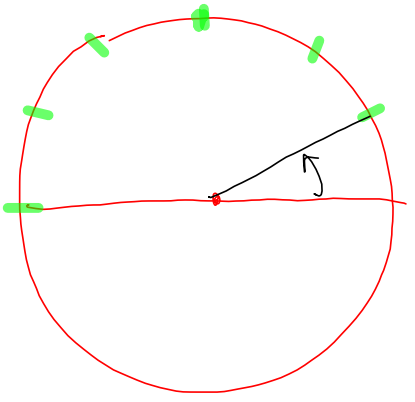
e. $\frac{\pi}{4}$ radians



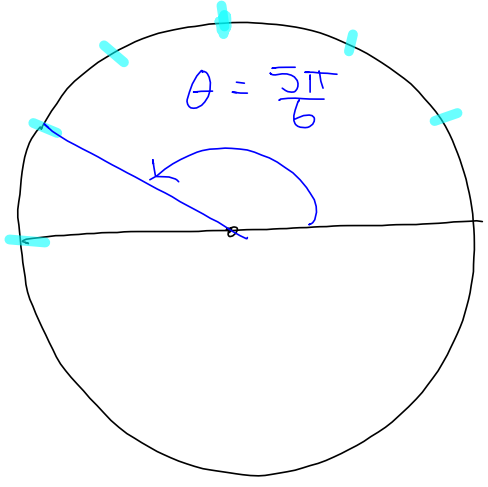
f. $\frac{\pi}{3}$ radians



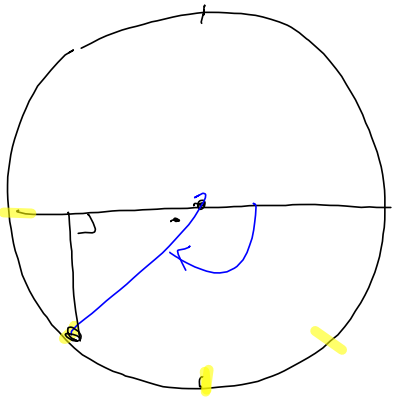
g. $\frac{\pi}{6}$ radians

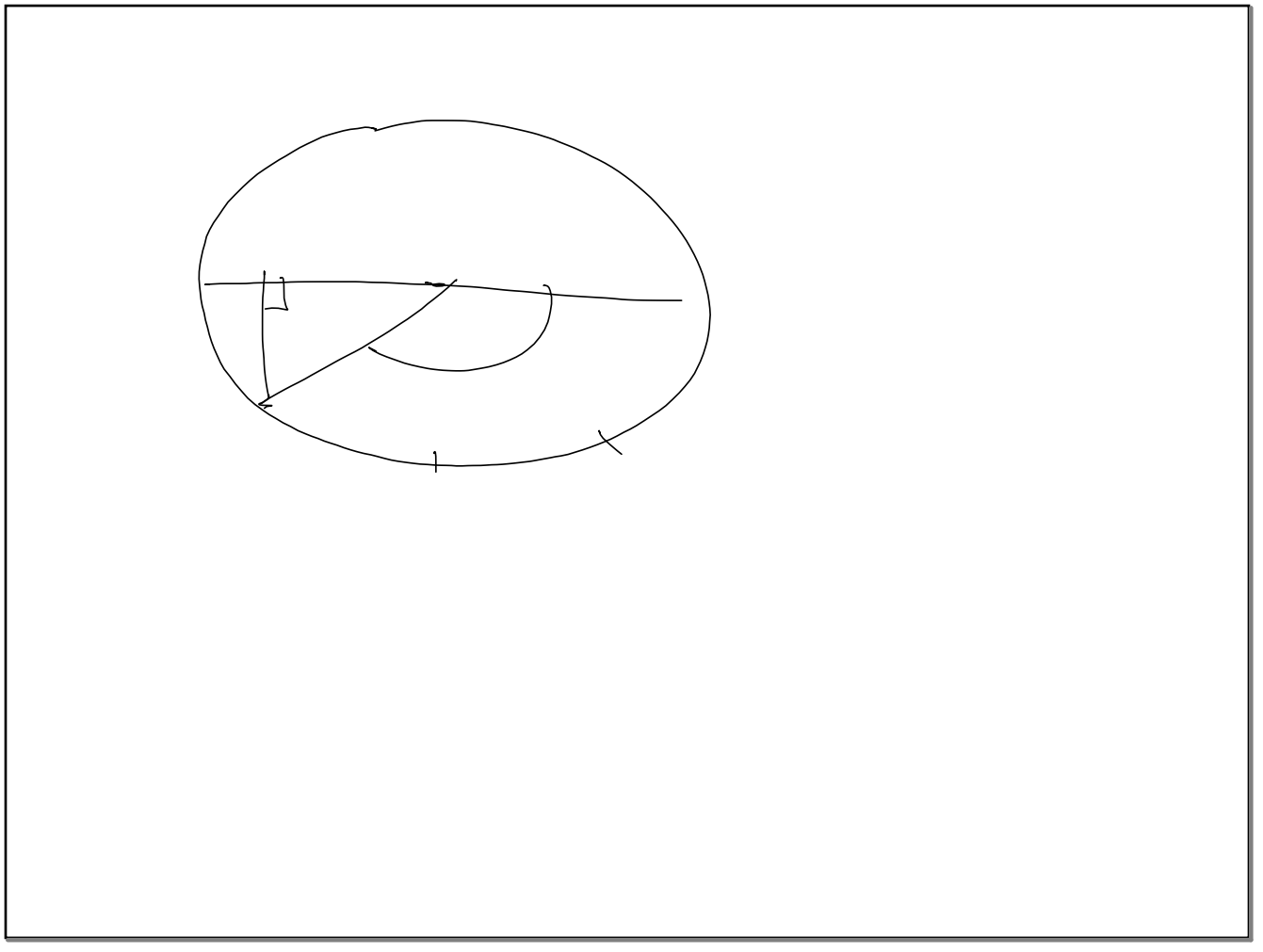


$\theta = \frac{5\pi}{6}$



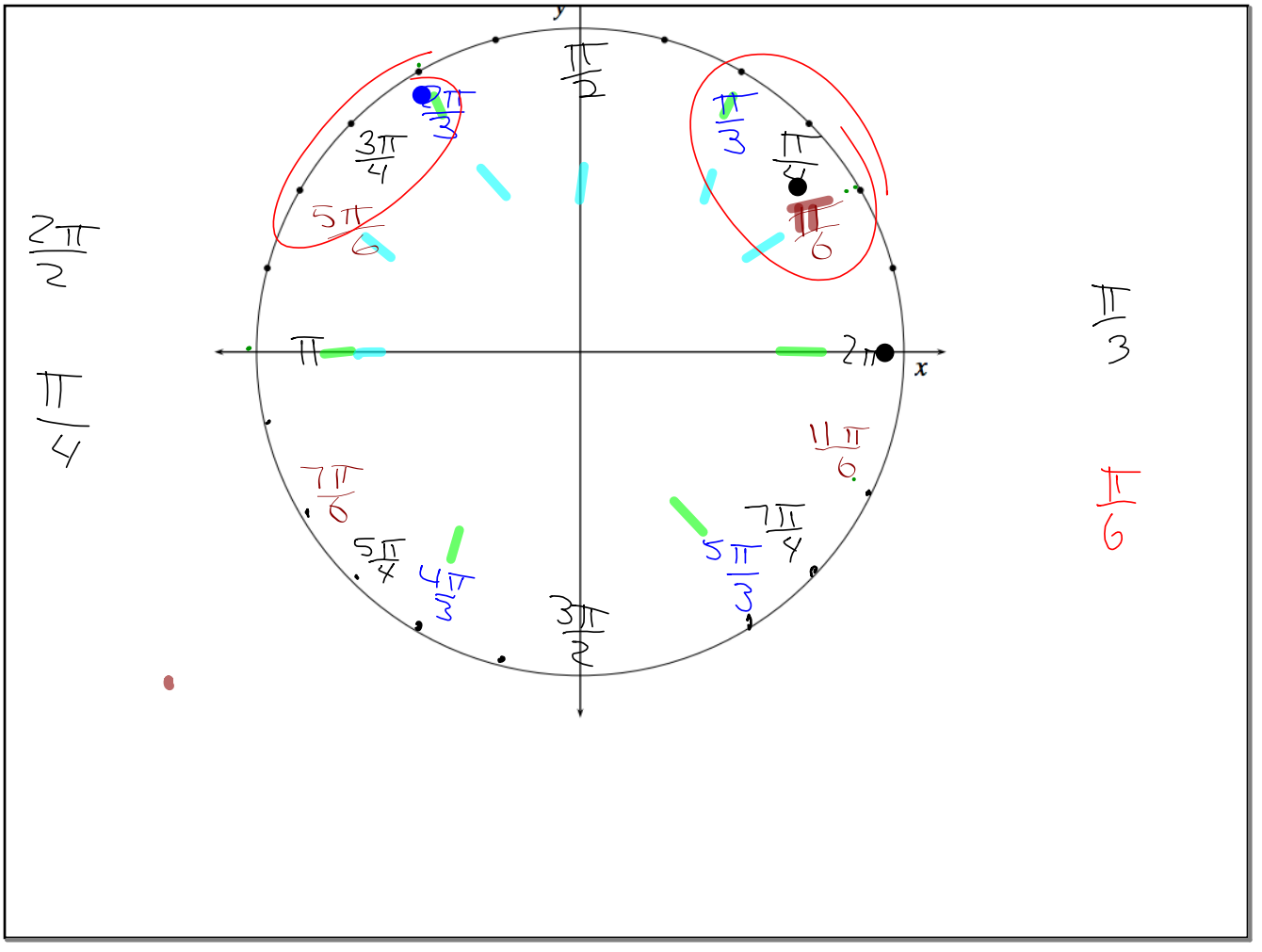
$\theta = -\frac{3\pi}{4}$

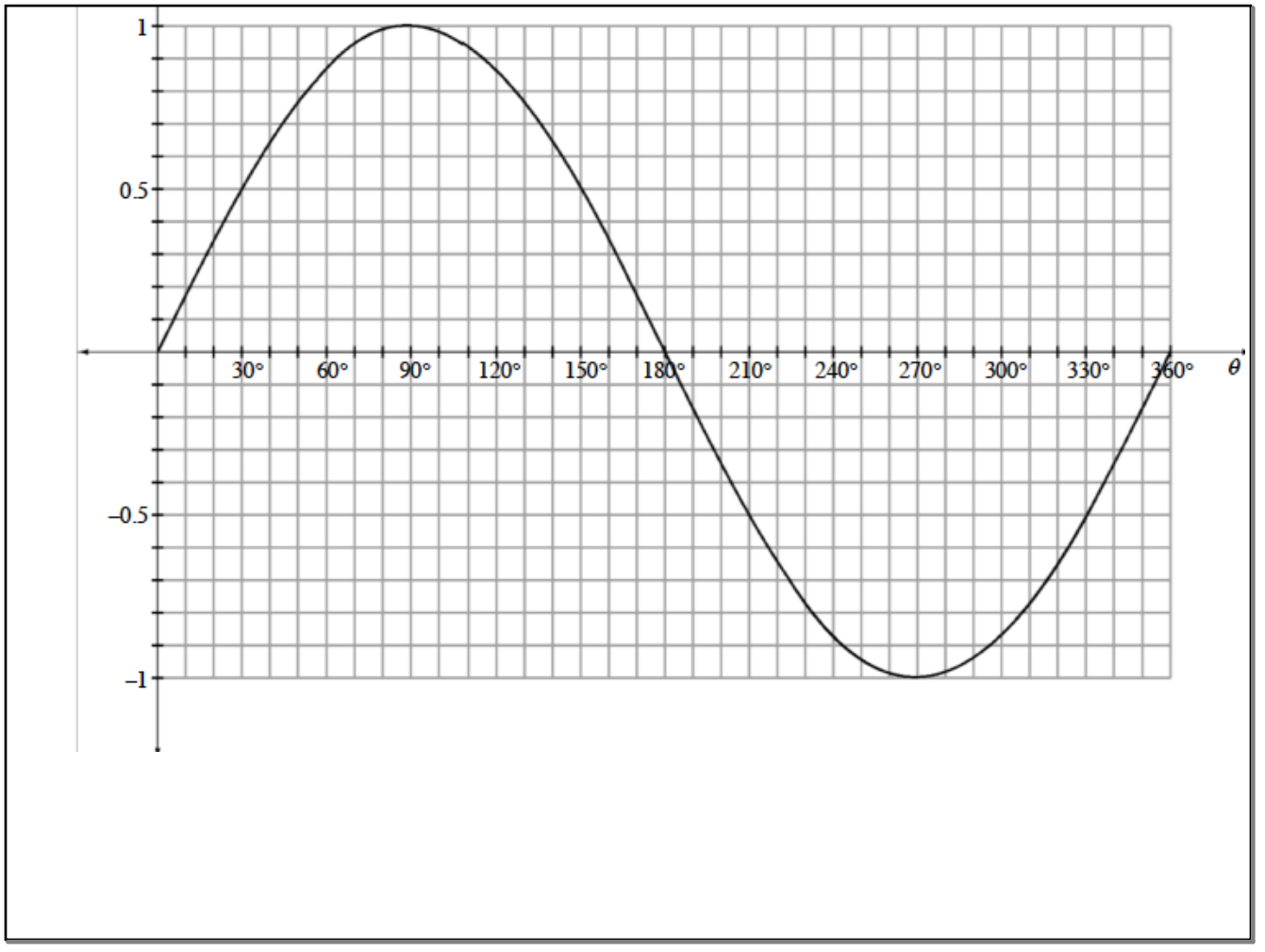


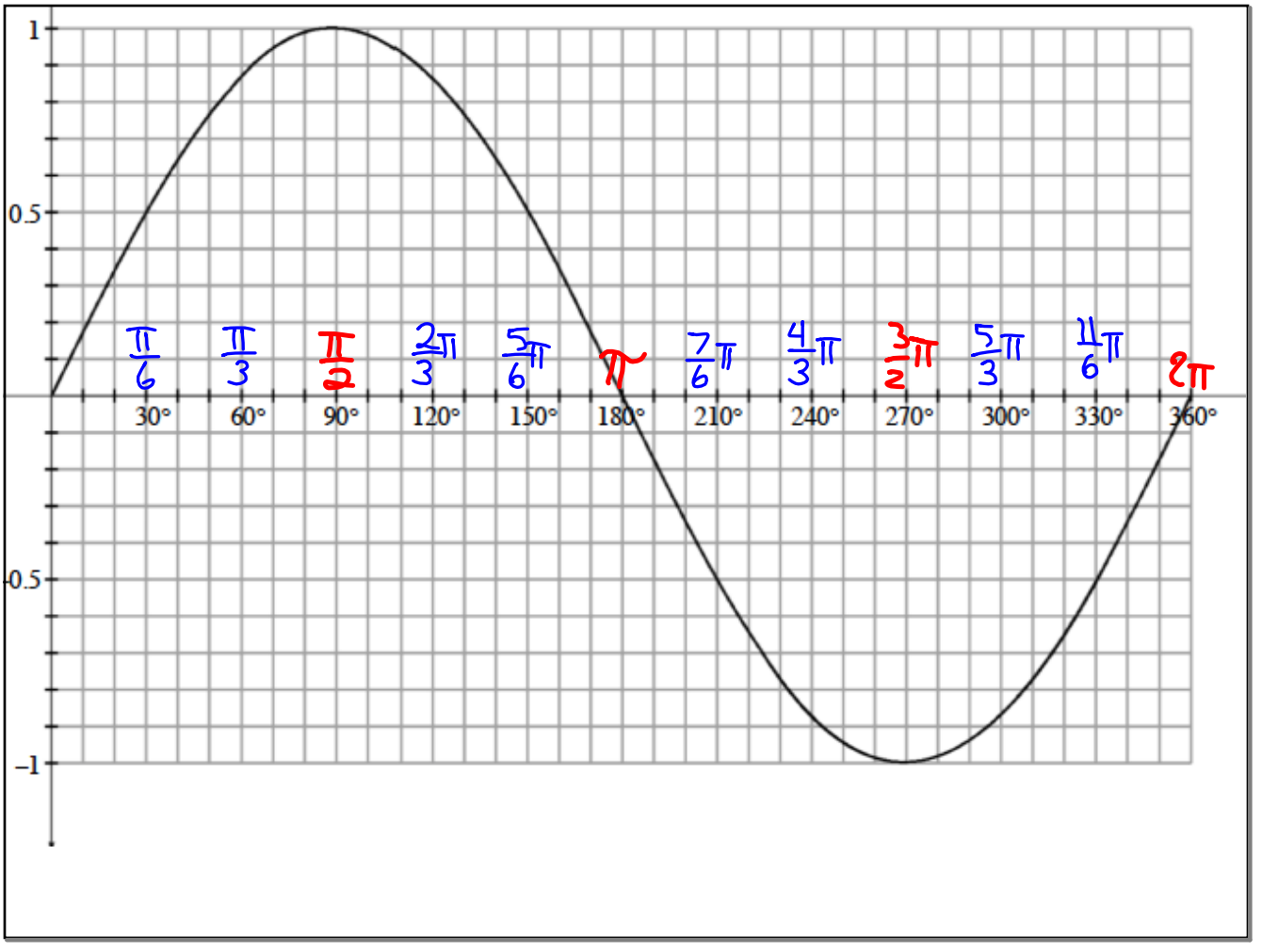


$\frac{5}{6}\pi$

$\frac{5\pi}{6}$


y
x
π/2
2π/3
3π/4
5π/6
π/3
π/4
π/6
π
2π
11π/6
7π/6
5π/4
4π/3
3π/2
5π/3
7π/4
2π/2
π/4
π/3
π/6


1
0.5
−0.5
−1
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°
360°
θ


1
0.5
-0.5
-1
π/6
π/3
π/2
2π/3
5π/6
π
7π/6
4π/3
3π/2
5π/3
11π/6
2π
30°
60°
90°
120°
150°
180°
210°
240°
270°
300°
330°
360°

Converting from Degrees to Radians

7-76

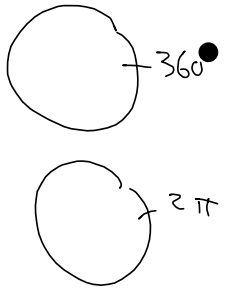
page 334

Convert

$$75.2^\circ \times \frac{2\pi}{360^\circ} = 1.31 \text{ radians}$$

$\frac{7 \text{ days}}{1 \text{ week}}$

$\frac{1 \text{ week}}{7 \text{ days}}$



$$\frac{60^{\circ}}{360^{\circ}} \times \frac{2\pi}{360^{\circ}} = \frac{\pi}{6} \text{ radians}$$

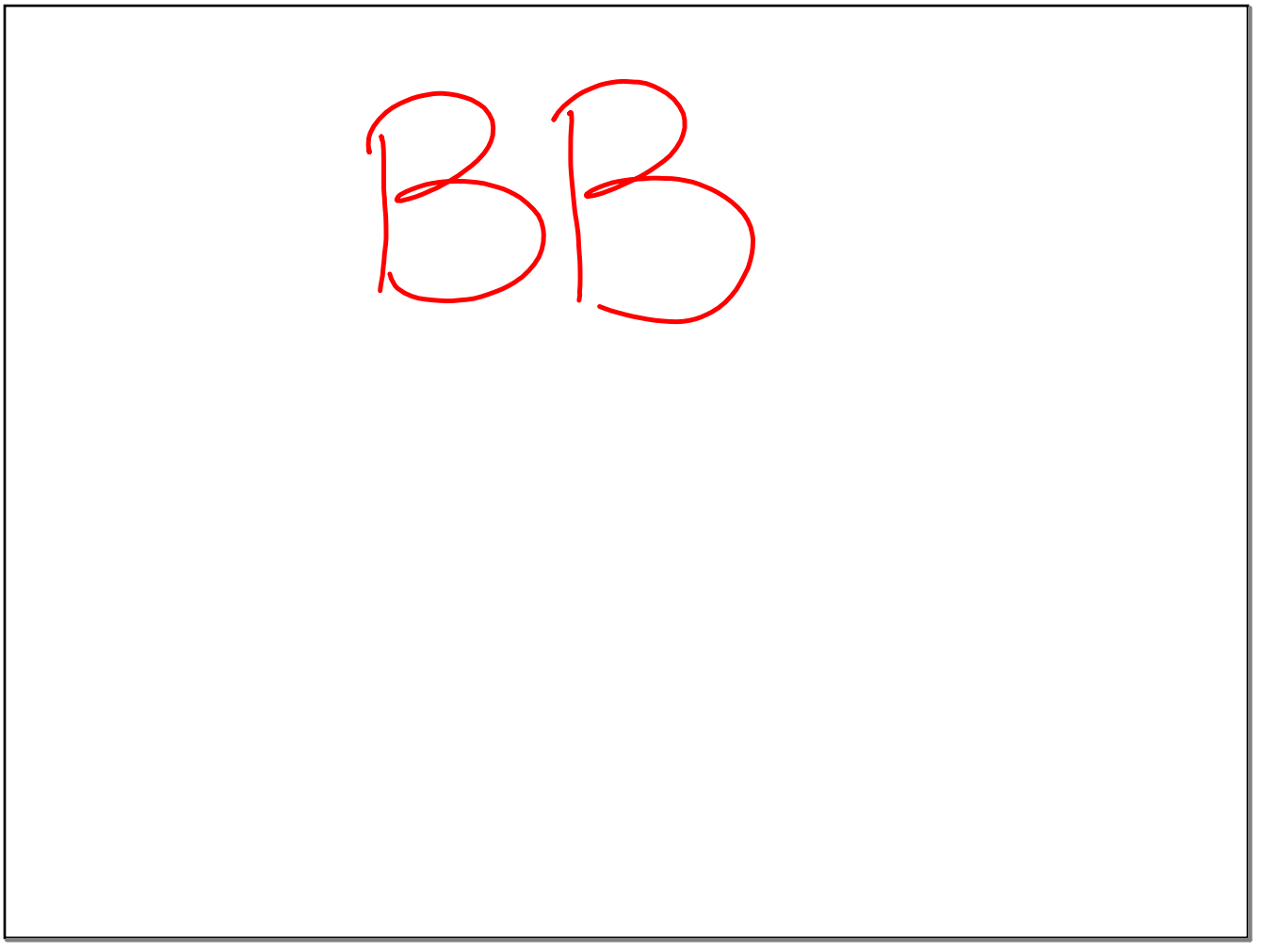
$$\frac{60}{360}$$

radians Convert to degrees

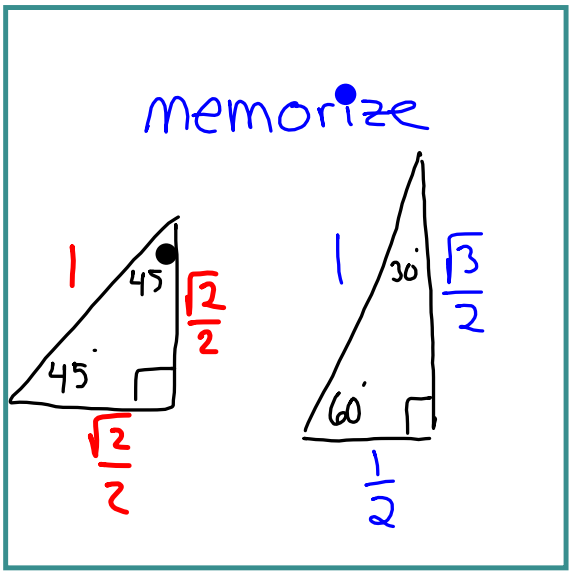
$$\frac{3\pi}{1\pi} \cdot \frac{360^\circ}{2\pi} = \frac{3 \cdot 90}{2} \quad \frac{270}{2} = 135^\circ$$

$$\frac{3\pi/4}{1} \times \frac{360}{2\pi}$$

$$\frac{3\pi}{7} \cdot \frac{360^\circ}{2\pi} = 77.14^\circ \checkmark$$


BB

In your notes, write down the following and put a box around it:



be sure your calculator is in degree mode.

Assignment

7..... 77-79, 80ac, 82a, 83, 85

on #78 only worry about the approximate answers.

pdf