

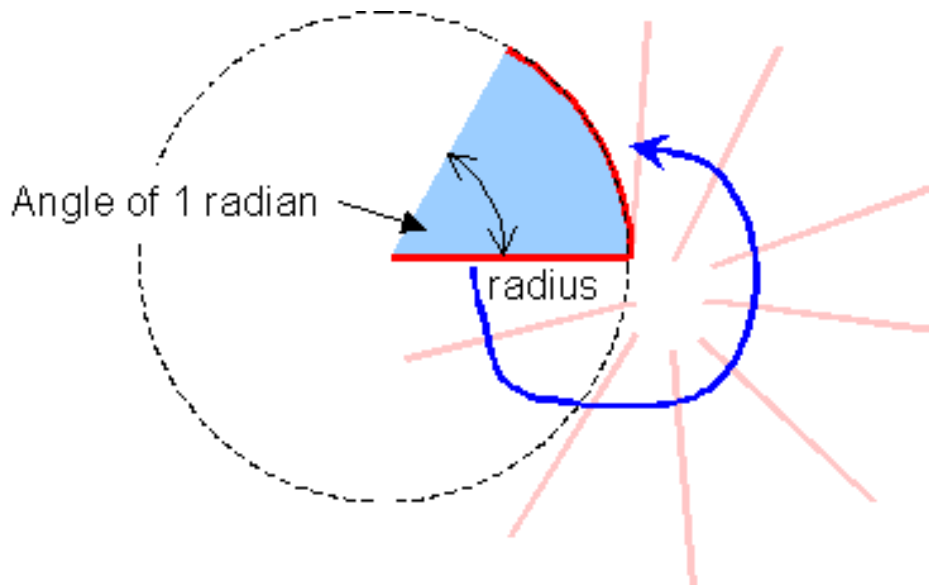
Section 6.1 Radians

Day 1

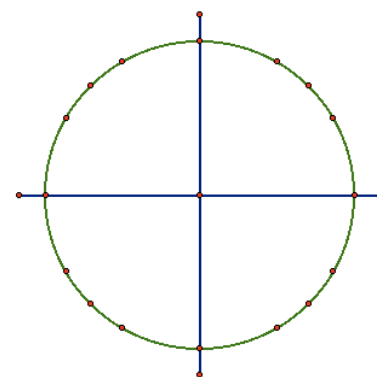
Radian:

- How many radii wrap around the circle from the x-axis to the terminal side?
- $180^\circ = 3.14$ radii
- $360^\circ = 6.28$ radii

Conversion Formula: $r / \pi = d / 180$ or $r / 2\pi = d / 360$

**Unit Circle Memory Tricks**

- Start on the x and y axis points which add $\frac{1}{2}$ pi each step
 - Calculator: 0, enter, +1/2 →FRAC
- Do the 45 degree points which add $\frac{1}{4}$ pi each step
 - Calculator: 0, enter, +1/4 →FRAC
- Do the 30 and 60 degree points which add $\frac{1}{6}$ pi each step
 - Calculator: 0, enter, +1/6 →FRAC



Assignment: finish 6-1A

Section 6.3 Radians

Day 1

Graphing $y = \sin x$

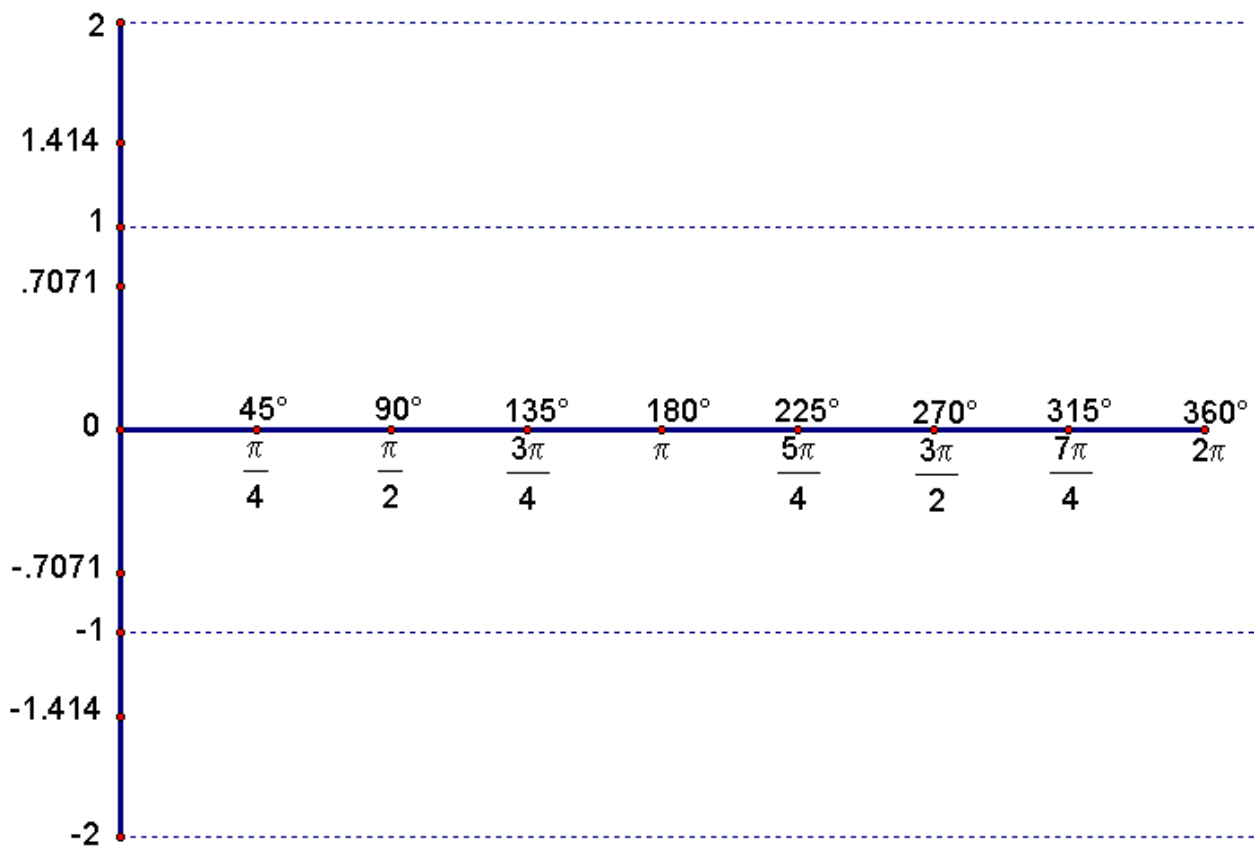
- On the unit circle, the _____ coordinate is the value of sine at the angle.
- Fill in the table below and graph the ordered pairs (angle, sin (angle))

Angle	0	45	90	135	180	225	270	315	360
Sine of the angle (exact)									
Sine of the angle (decimal)									
- Connect the dots with a smooth line

Graphing $y = \csc x$

- Csc x is the reciprocal of _____
- Fill in the table below and graph the ordered pair (angle, csc (angle)) for each of the angles

Angle	0	45	90	135	180	225	270	315	360
Cosecant of the angle (exact)									
Cosecant of the angle (decimal)									
- Connect the dots with a smooth line



Graphing $y = \cos x$

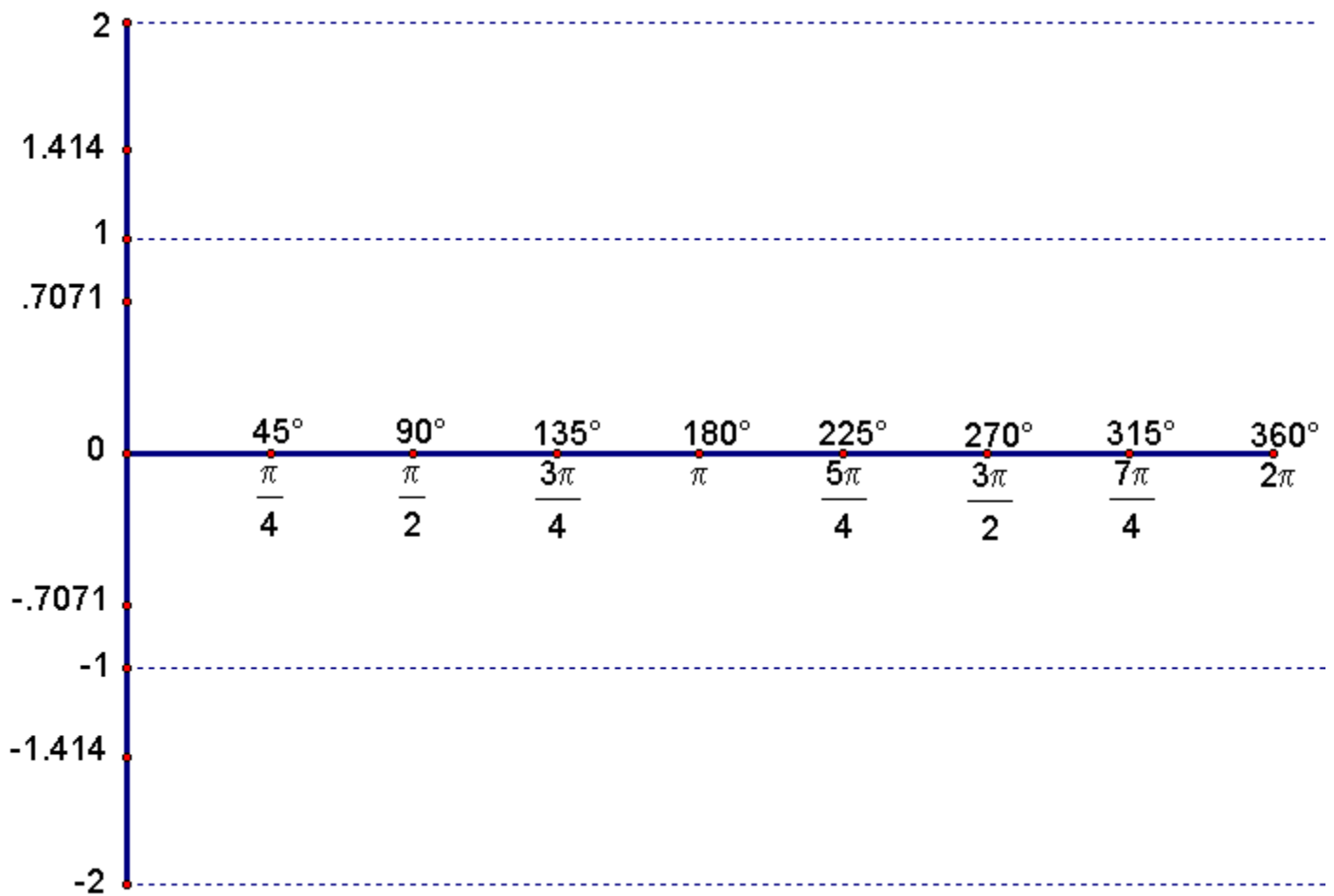
- On the unit circle, the coordinate is the value of cosine at the angle.
- Fill in the table below and graph the ordered pairs (angle, $\cos(\text{angle})$)

Angle	0	45	90	135	180	225	270	315	360
Cosine of the angle (exact)									
Cosine of the angle (decimal)									
- Connect the dots with a smooth line

Graphing $y = \sec x$

- $\sec x$ is the reciprocal of
- Fill in the table below and graph the ordered pair (angle, $\sec(\text{angle})$) for each of the angles

Angle	0	45	90	135	180	225	270	315	360
Secant of the angle (exact)									
Secant of the angle (decimal)									
- Connect the dots with a smooth line

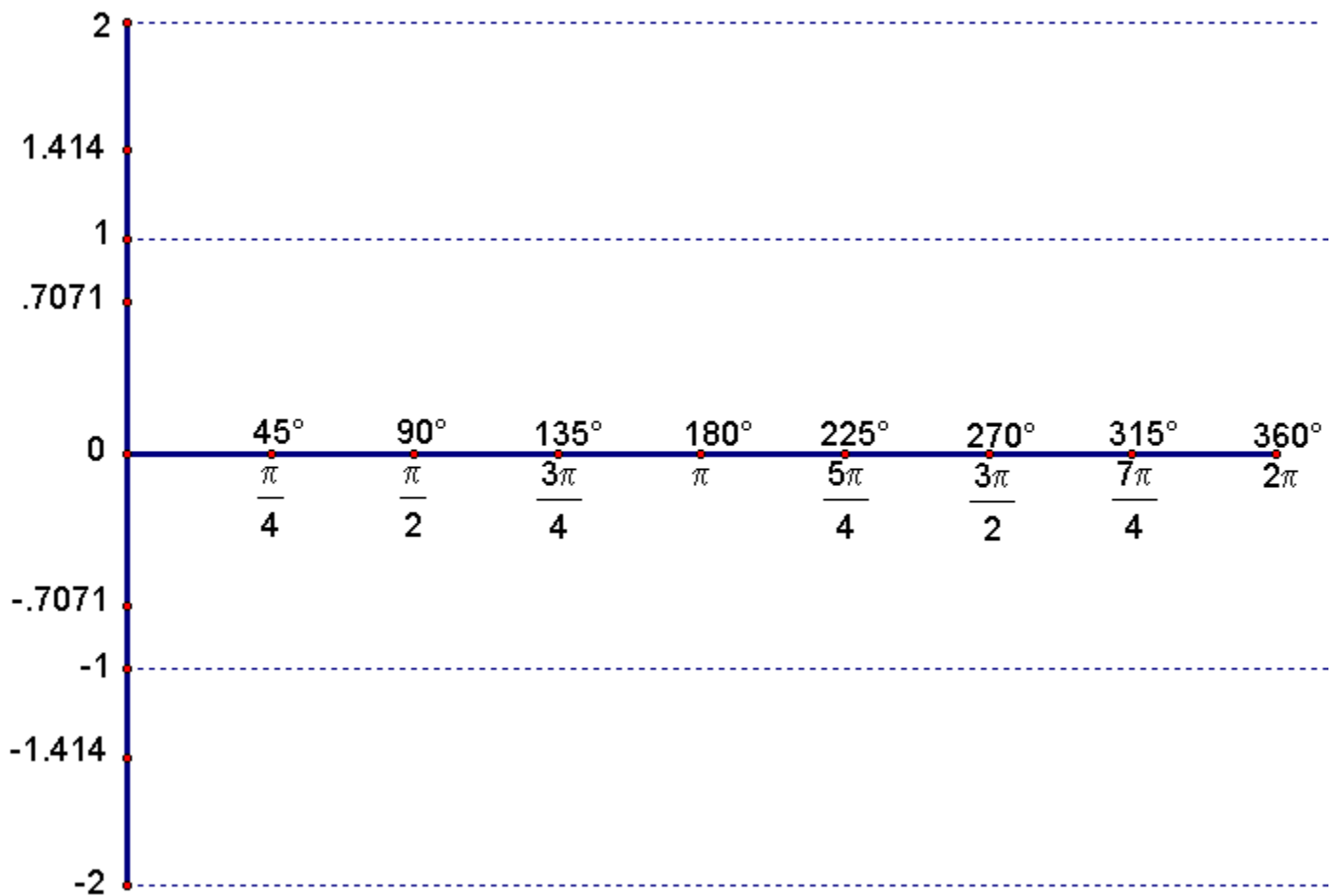


Graphing $y = \tan x$

- $\tan x = \frac{\text{opposite}}{\text{adjacent}}$
 - Therefore, on the unit circle, the tangent of the angle = the coordinate divided by the coordinate.
 - Fill in the table below and graph the ordered pair (angle, $\tan(\text{angle})$) for each of the angles
- | Angle | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 | 360 |
|-------------------------------------|---|----|----|-----|-----|-----|-----|-----|-----|
| Ordered pair on unit circle (exact) | | | | | | | | | |
| Tangent of the angle (exact) | | | | | | | | | |
| Tangent of the angle (decimal) | | | | | | | | | |
- Connect the dots with a smooth line

Graphing $y = \cot x$

- $\cot x$ is the reciprocal of
 - Fill in the table below and graph the ordered pair (angle, $\cot(\text{angle})$) for each of the angles
- | Angle | 0 | 45 | 90 | 135 | 180 | 225 | 270 | 315 | 360 |
|----------------------------------|---|----|----|-----|-----|-----|-----|-----|-----|
| Cotangent of the angle (exact) | | | | | | | | | |
| Cotangent of the angle (decimal) | | | | | | | | | |
- Connect the dots with a smooth line



Section 6.3 Radians

Day 2

Periodic function: When the values repeat for each interval of the domain. Such as temperatures repeating each year.

- A function is periodic if, for some real number a , $f(x + a) = f(x)$ for each x in the domain.
- a is the period if it is the smallest value that creates the repeating values.
- Graphing on calculator: use zoom trig

Period: The interval of x values when the function returns to the original position.

Example: For temperature it is 1 year, or 365 days

Assignment: finish 6-3A tomorrow finish 6-3B

Section 6.4 Amplitude and Period

Day 1

Amplitude Notes

Given $y = A \sin x$ or $y = A \cos x$ the amplitude is $|A|$.

Example: compare

$$y = \sin x$$

$$y = 2\sin x$$

$$y = 3 \sin x$$

Period Notes

Given $y = \sin(kx)$ or $y = \cos(kx)$ the period of the function is equal to $2\pi / k$ where $k > 0$.

Example: Compare the period for

$$y = \cos x$$

$$y = \cos(2x)$$

$$y = \cos(5x)$$

Assignment: finish 6-4A

Section 6.4 Amplitude and Period

Day 2

Amplitude/Period from the graph Notes

- Amplitude is in front of sine or cosine
- Period: use the formula $p = (2\pi)/k$ where k is inside the sine or cosine ()

Assignment: finish 6-4B

Trigonometry Translations Notes

General Function: $y = A \sin (Kx + C) + H$

A = amplitude (height)

K = controls the period

H = vertical shift, positive is up

C = controls horizontal shift (aka phase shift)

formula: $\text{shift} = -C/K$

The graph moves right when the shift is positive

Assignment: finish 6-5A tomorrow 6-5B