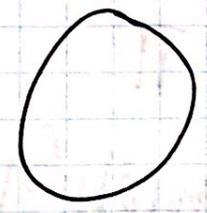


Angles in Radians

What are radians?

→ measures the angle by distance traveled.

Thinking about a circle



Circumference:

$$C = 2\pi r$$

if $r = 1$ $C = 2\pi(1) = 2\pi$

Degrees

90

Radians

$\frac{\pi}{2}$

180

0
360

π

0
 2π

$\frac{3\pi}{2}$

does 270

What π equal in degrees? 180°

whole thing = 2π ; sections = 4
Each section = $\frac{2\pi}{4} = \frac{\pi}{2}$

We can use the fact that $\pi = 180^\circ$ to convert from radians to degrees!

$$\text{Ex) } \frac{5\pi}{3} = \frac{5(180)}{3}$$

$$= 300^\circ$$

$$\text{Ex) } \frac{6\pi}{19} = \frac{6(180)}{19} =$$

$$56.84^\circ$$

You Try!

$$\text{Ex) } 3\pi = 540$$

$$\text{Ex) } \frac{-6\pi}{7} =$$

$$-154.29$$

$$\text{Ex) } \frac{-7\pi}{8} = -157.5$$

STEPS:

Radians \rightarrow Degrees

① Plug 180 in for π

② Simplify!

Keep as a decimal w/ 2 places

what if I want to go from degrees to radians?

Similar!

$$\text{Ex) } 200^\circ = \frac{200}{180} = \frac{10\pi}{9}$$

$$\text{Ex) } 90^\circ = \frac{90}{180} = \frac{\pi}{2}$$

$$\text{Ex) } -540 = -3\pi$$

$$\text{Ex) } 52 = \frac{13\pi}{45}$$

STEPS:

Degrees \rightarrow Radians

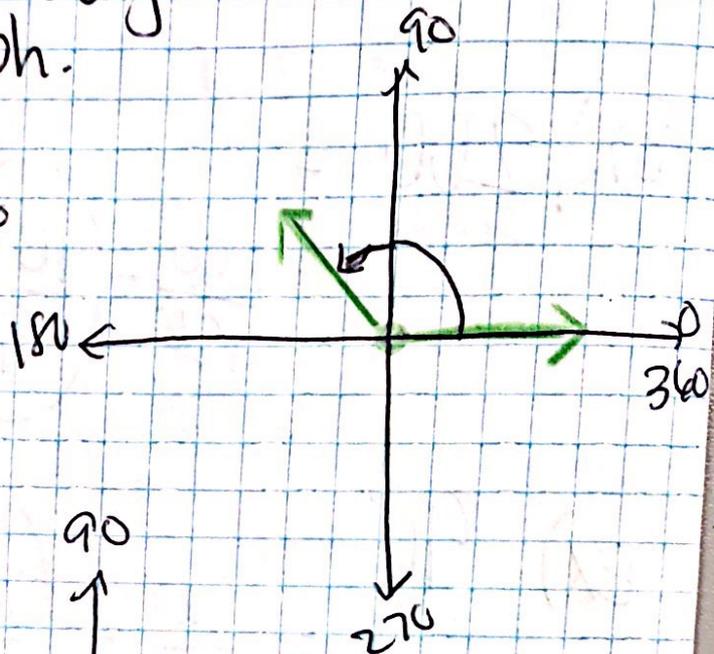
- ① Divide by 180
- ② Make a pretty fraction, no decimals
- ③ Slap π on top (numerator)

Now, we want to graph radians!

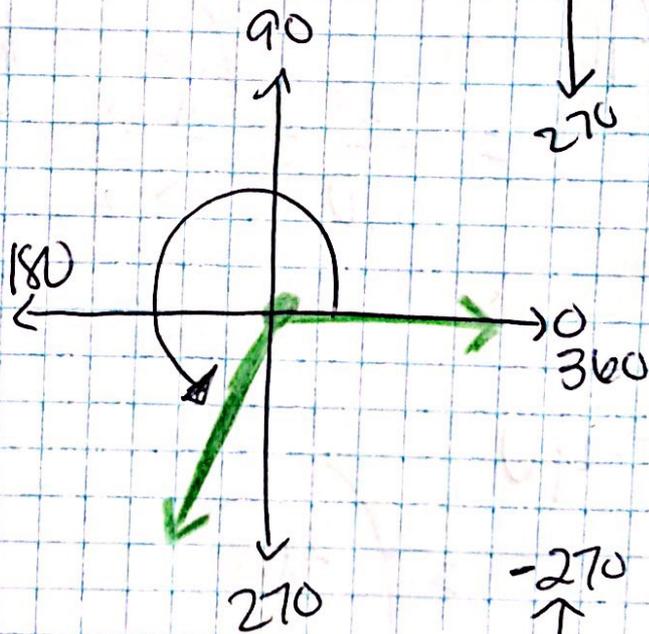
STEPS:

→ Convert to degrees
→ Then graph.

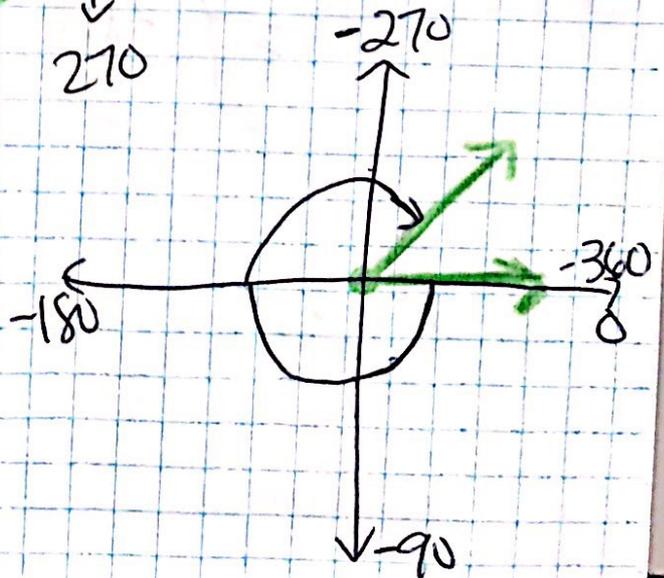
$$\text{Ex) } \frac{7\pi}{10} = \frac{7(180)}{10} = 126^\circ$$



$$\text{Ex) } \frac{25\pi}{18} = 250^\circ$$



$$\text{Ex) } \frac{-5\pi}{3} = -300$$



$$\text{EX } \frac{-28\pi}{9} = \frac{-560 + 360 \textcircled{1}}{-200}$$

→
keep it negative
& between 0 & 360
|absolute value|

