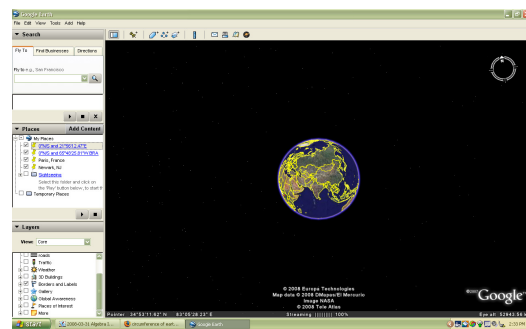
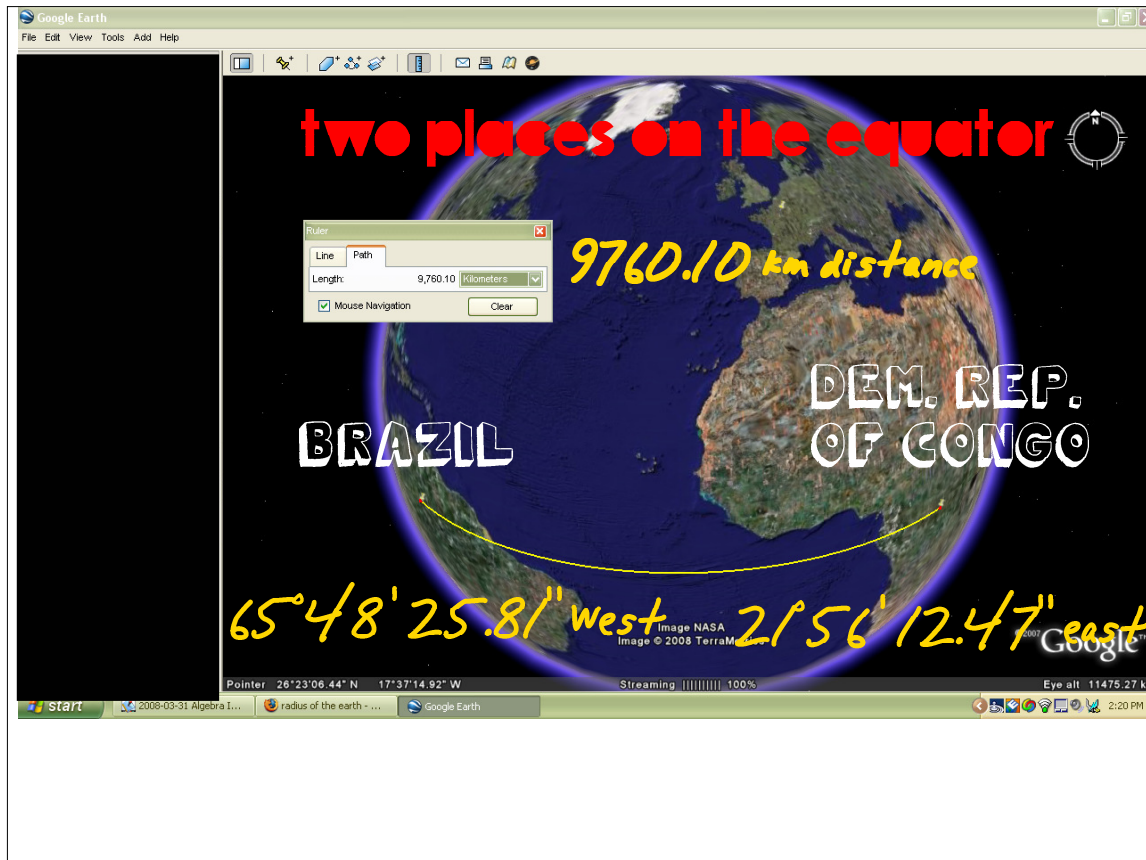


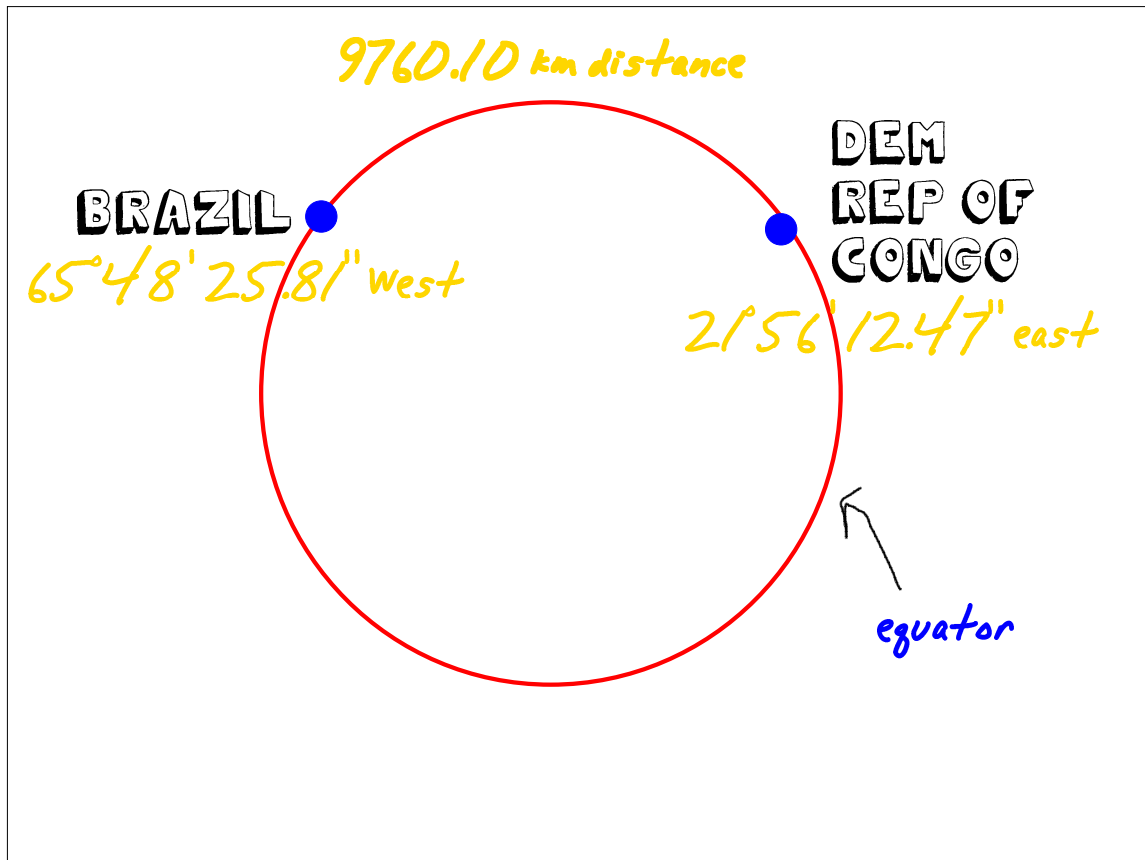
WELCOME BACK STUDIENTES

LETS FIND THE
CIRCUMFERENCE OF THE
EARTH USING GOOGLE
EARTH





FROM THIS INFO
FIND THE
CIRCUMFERENCE OF THE
EARTH



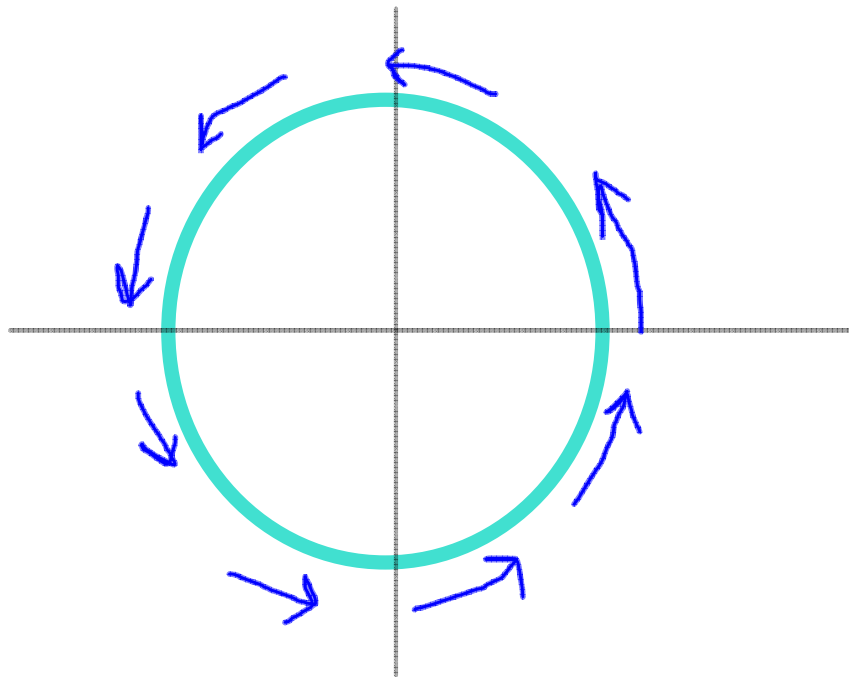
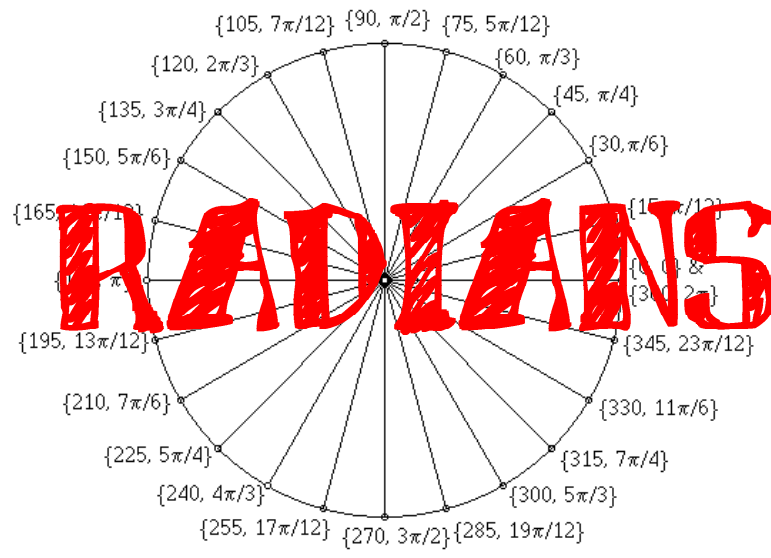
ACTUAL CIRCUMFERENCE

Circumference of Earth

40,075.02 km (equatorial)

40,007.86 km (meridional)

40,041.47 km (mean)





**THE CIRCLE
DEMANDS IT**

QUICK REVIEW

**HOW TO CONVERT BACK AND
FORTH BETWEEN DEGREES
AND RADIANS**

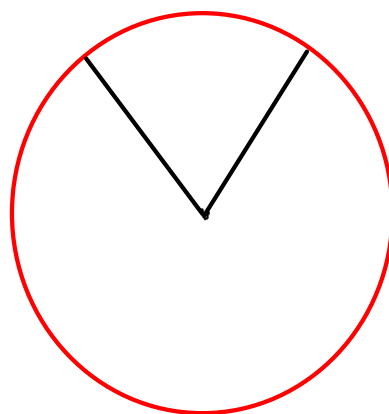
IN ONE EASY STEP

(remember the "do now" when doing this)

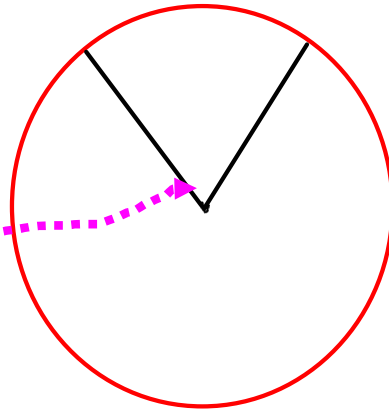
convert 53° into radians

convert $\frac{7\pi}{6}$ into degrees

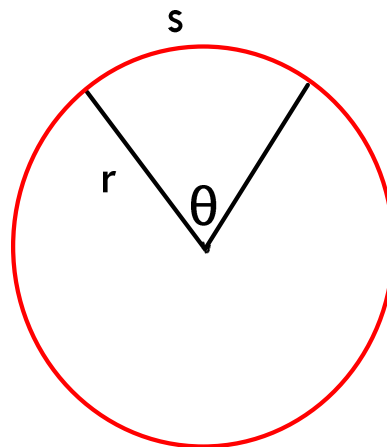
ARC LENGTH
&
CENTRAL ANGLES



ARC LENGTH
&
CENTRAL ANGLES

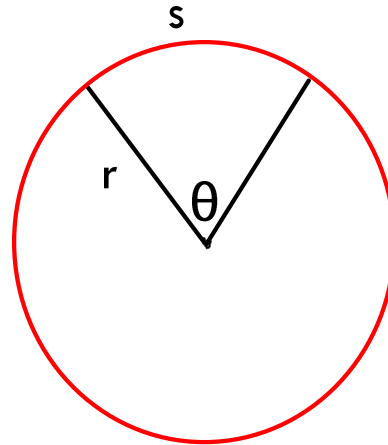


PROPORTION:



CONCLUSION:

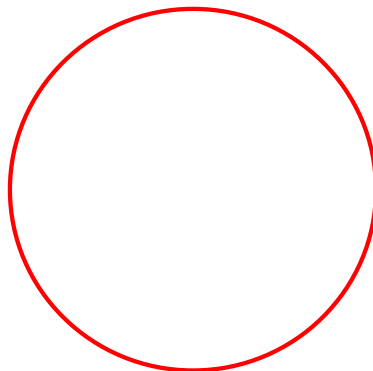
$$s = \theta r$$



(in words: the arc length for any circle is equal to the angle in radians times the radius)

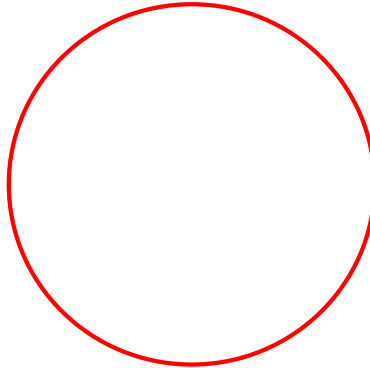
check yo'self

Find the length of an arc of a circle of radius 5 cms associated with an angle of $\pi/3$ radians.

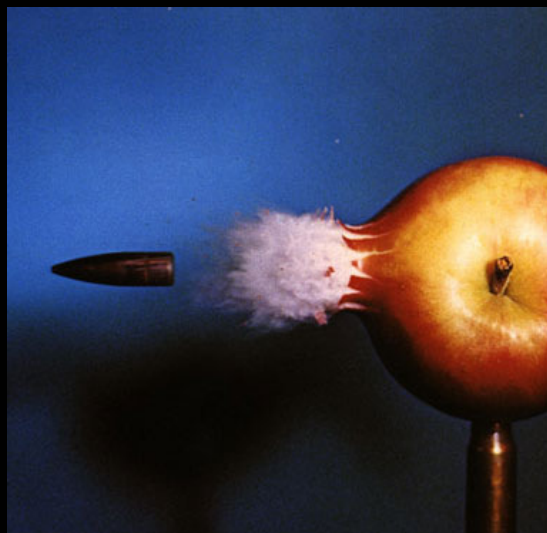


check yo'self

Find the measure of a rotation in radians when a point 2 meters from the center of rotation travels 4 m.



NEED FOR SPEED!



when you use the term "speed", you are actually
thinking of **"linear speed"**

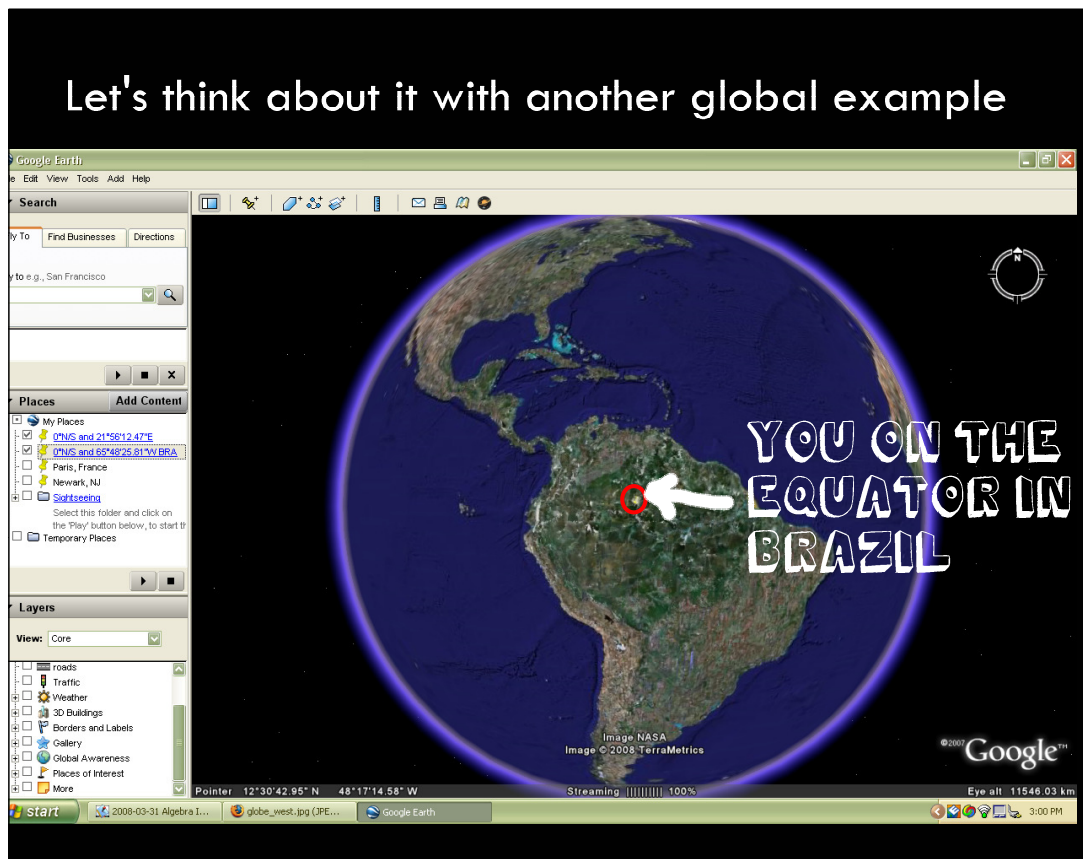
when you use the term "speed", you are actually
thinking of **"linear speed"**

V :

- $\text{linear speed} = \frac{\text{total distance traveled}}{\text{total time it took to travel}}$

But there is another kind of speed, called
"angular speed"

$$\omega : \text{angular speed} = \frac{\text{total angle traveled}}{\text{total time traveled}}$$



Given that the radius of the earth
is about 6378.1 kilometers...

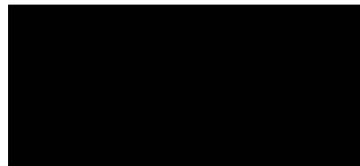
What is your **linear speed (in km/hr)**?

$$V =$$

What is your **angular speed (in rad/hr)**?

$$\omega =$$

Did you notice
something nice?



check yo'self **WRITE ALL UNITS WHEN DOING WORK!**

A 2004 Tundra V8 is traveling at a speed of 65 **mph**. Its tires have an outside diameter of 30.56 **in**. Find the angle through which a tire turns in 10 **seconds**...

HW

Section 5.4#(optional review)2,4,7,18, 31,33
(required) 61-69, 71-73

Quiz on 5.1-5.4 is on _____

