

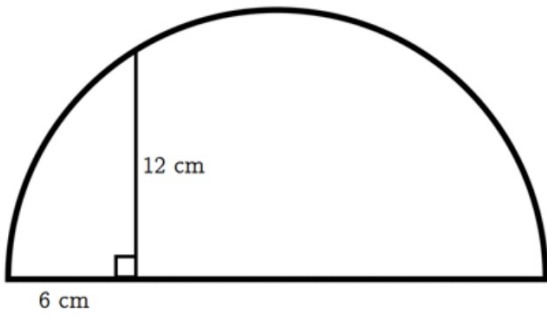
Assessment

When finished:

- be sure your name is on it
- turn it into the basket
- pick up a half-sheet near the basket, work on that

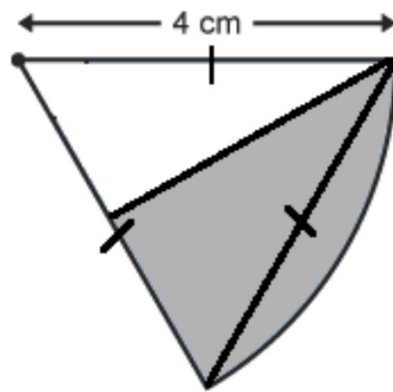
Keep working on the challenge puzzles this week
See me when you think you have an answer!

NOTES
textbook
p 472

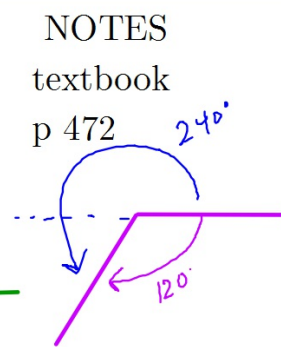
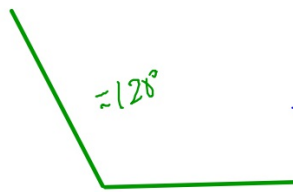
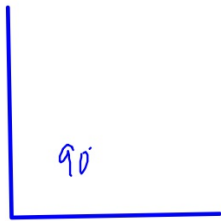
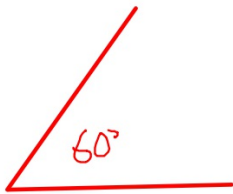


The figure shown is a semicircle. Find the perimeter of the figure (not to scale).

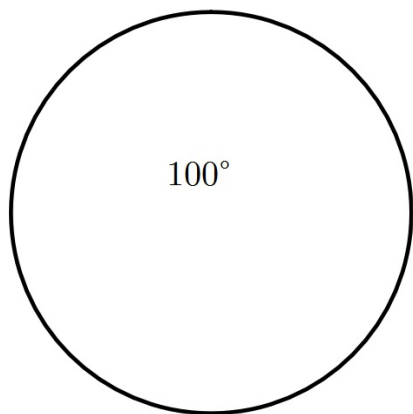
Find the area of the shaded region.



How do we measure angles?



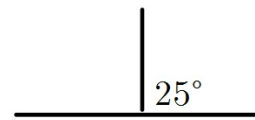
Using 360° as a full rotation is an artifact of human culture and history
It has no mathematical basis



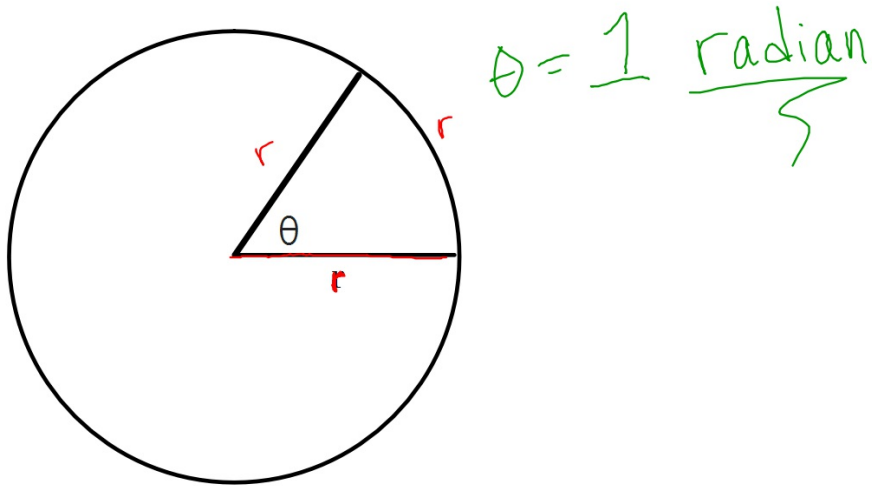
Why not 100° for a full circle?

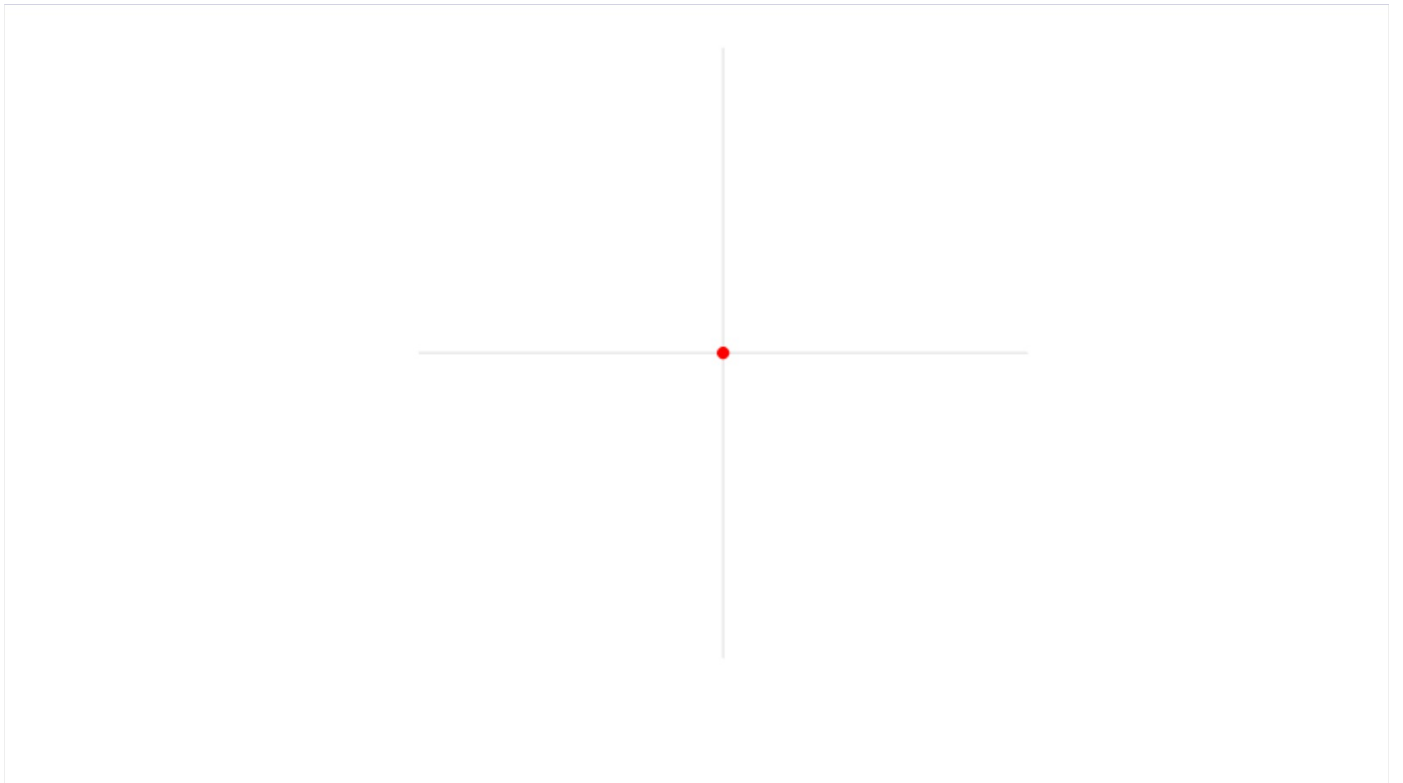
50° for a straight line?

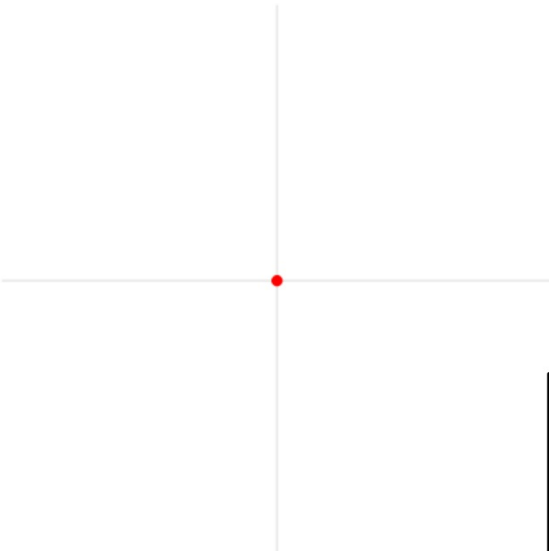
25° for a right angle? and so on....



A standardized, mathematical notion of angle measure



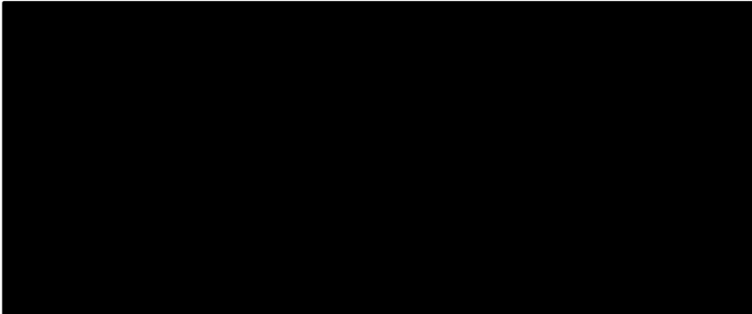




1 radian is central angle of a circle
whose arc length measures 1 radius

or

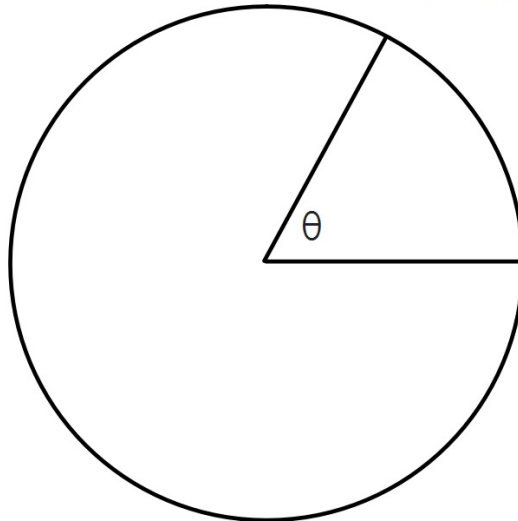
a radian is the angle of an "equilateral sector"



How many radians is a full rotation?

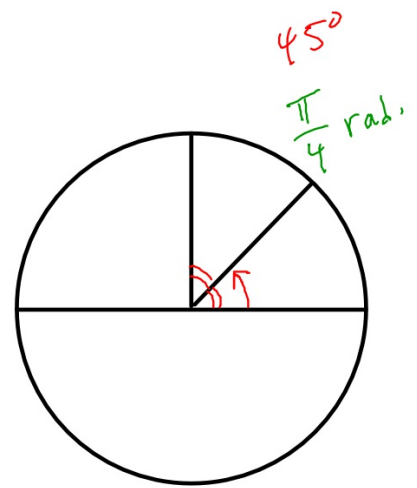
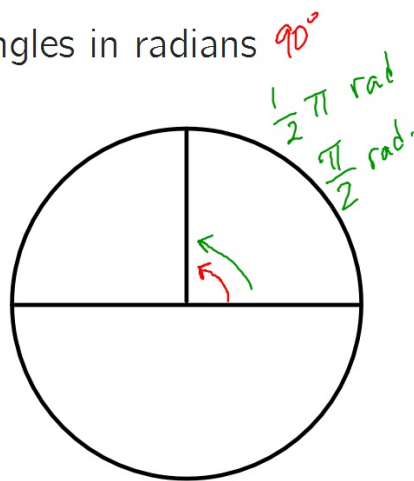
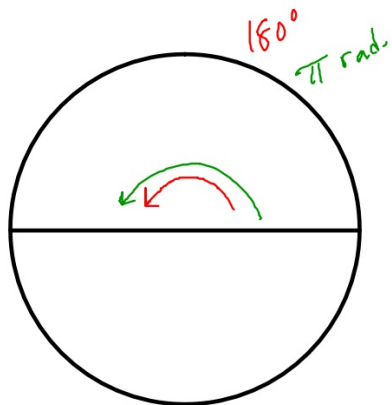
Remember:

Circumference = $\pi * 2r$ or $2\pi r$



Your turn:

Measure each of these angles in radians 90°



To convert between degrees and radians:

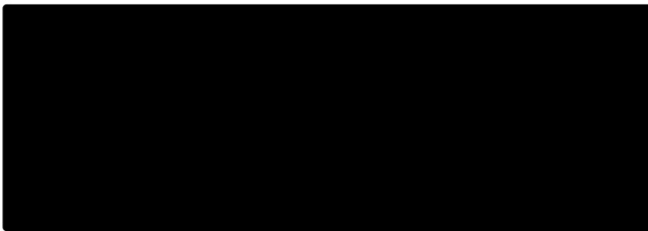
$$\frac{180 \text{ degrees}}{\pi} = \frac{\pi \text{ radians}}{\pi}$$

$$1 \text{ degree} = \frac{\pi}{180} \text{ rad.}$$

$$1 \text{ rad} = \frac{180}{\pi} \text{ deg.}$$

Deg to Rad: multiply by $\pi/180^\circ$

Rad to Deg: multiply by $180^\circ/\pi$



p. 473 a-d $\frac{2}{3} \cdot \frac{8}{12} = \frac{16}{36} = \frac{4}{9}$ Deg to Rad: multiply by $\pi/180^\circ$

Convert these:

Rad to Deg: multiple by $180^\circ/\pi$

a. $20^\circ = \frac{\pi}{9}$ rad

b. $270^\circ = \frac{3\pi}{2}$ rad

c. $2\pi/3$ rad = 120°

d. $\pi/9$ rad = 20°

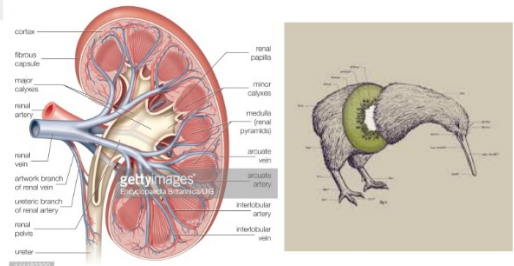
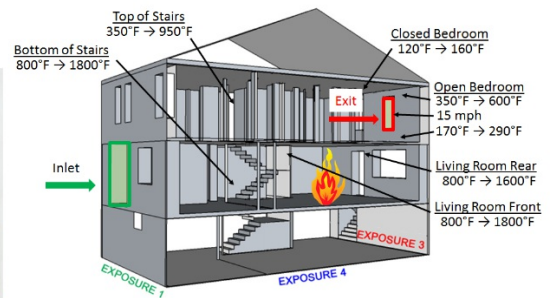
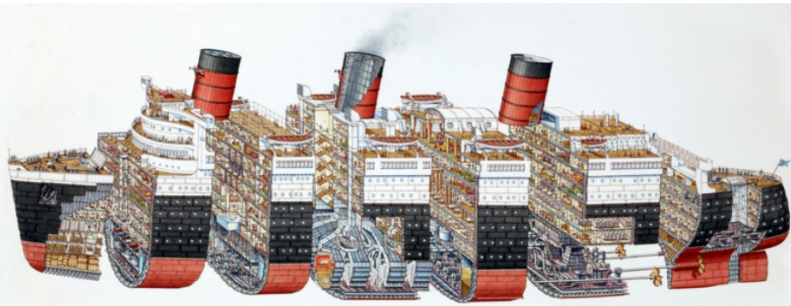
e.) $60^\circ = \frac{1\pi}{3}$ rad.

$$\frac{60^\circ}{1} \cdot \frac{\pi}{180^\circ} = \frac{60\pi}{180} = \frac{1\pi}{3}$$

c.) $\frac{2\pi}{3} \cdot \frac{180^\circ}{\pi} = \frac{360\pi}{3\pi} = 120^\circ$

Share with your face partner something you have learned so far today.

Cross Sections

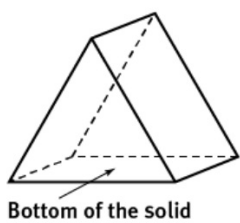




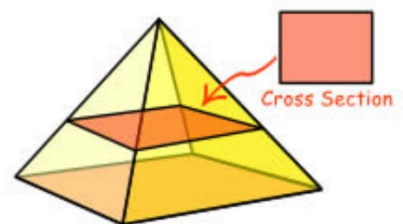
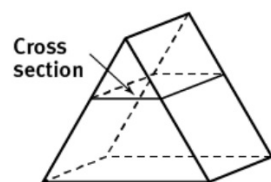
a cross section is a "slice"
but a slice's shape depends on how you cut

Cross Sections in Geometry

p. 483: a cross section is the intersection of a solid and a plane



triangular prism (in book)



note that this is not a prism

Better understanding cross sections:

<http://www.pbslearningmedia.org/resource/muen-math-g-slicing3dfigures/slicing-three-dimensional-figures/>

The beauty of cross sections

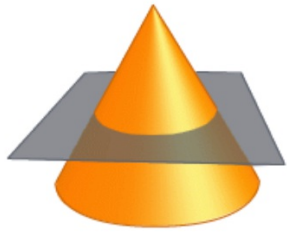
<https://www.youtube.com/watch?v=XwWJfe1SGMA>

Formed by the intersection of:

- square pyramid
- cone



Enter in your PIN



A



B



C



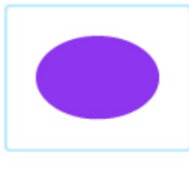
D



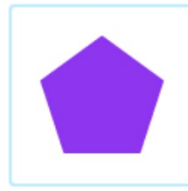
A



B



C



D



A



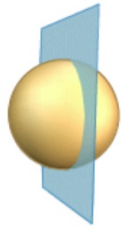
B



C



D



A



B



C



D



A



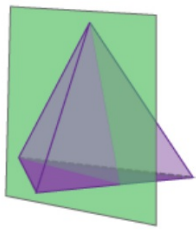
B



C



D



A



B



C



D



A



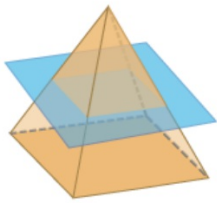
B



C



D



A



B



C



D



A



B



C



D



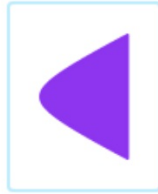
A



B



C



D

Homework:

p. 475: #1,3,9,14,15

[C-B5c]