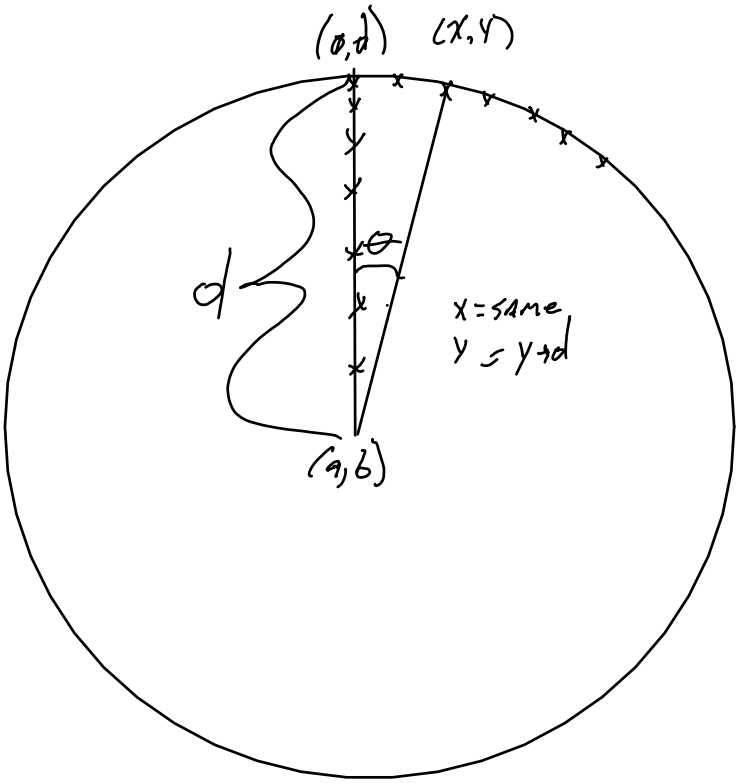
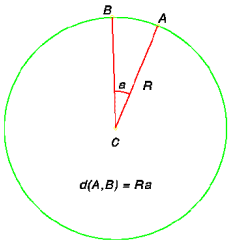
circle math

Tuesday, October 7, 2014 11:13 PM



Parametric Equation Circle
$X = a + d * \cos(\theta)$
$y = b + d * \sin(\theta)$

adjust θ to adjust speed & granularity.



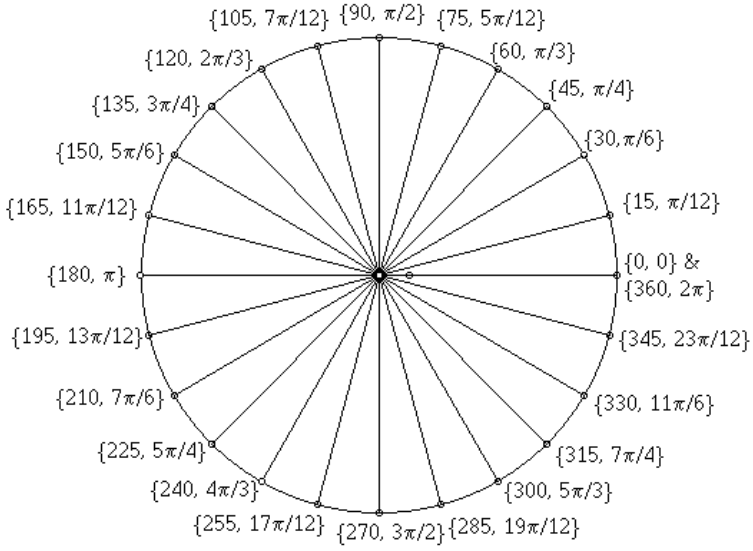
radians

The size of a radian is determined by the requirement that there are 2
π
radians in a circle. Thus 2
π
radians equals 360 degrees. This means that 1 radian = 180/
π
degrees, and 1 degree =
π
/180 radians.

From <http://math.rice.edu/~pcmi/sphere/drg_txt.html>

If A and B are two points on a circle of radius R and center C, then the length of the arc of the circle connecting them is given by
d(A,B) = R a,
where R is the radius of the sphere, and a is the angle ACB measured in radians. If we measure the angle in degrees, then the formula is
d(A,B) = R a
π
/180,
These formulas can be checked by noticing that the arc length is proportional to the angle, and then checking the formula for the full circle, i.e., when a = 2
π
radians (or 360 degrees).

From <http://math.rice.edu/~pcmi/sphere/drg_txt.html>


{105, 7π/12}
{90, π/2}
{75, 5π/12}
{120, 2π/3}
{60, π/3}
{135, 3π/4}
{45, π/4}
{150, 5π/6}
{30,π/6}
{165, 11π/12}
{15, π/12}
{180, π}
{0, 0} &
{360, 2π}
{195, 13π/12}
{345, 23π/12}
{210, 7π/6}
{330, 11π/6}
{225, 5π/4}
{315, 7π/4}
{240, 4π/3}
{300, 5π/3}
{255, 17π/12}
{270, 3π/2}
{285, 19π/12}

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