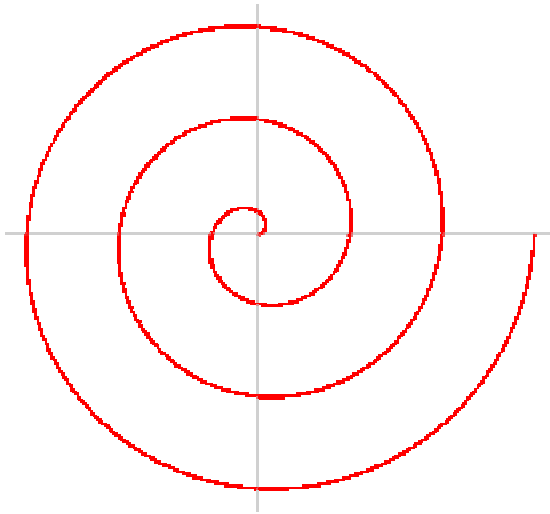


Lesson Plan 1 2 Polar Coordinates and Spirals Math 48C Mitchell Schoenbrun

1) Attendance

First we look at an Archimedean Spiral

$$r = a + b\theta$$



Notice that the radial distance between lines is a constant.

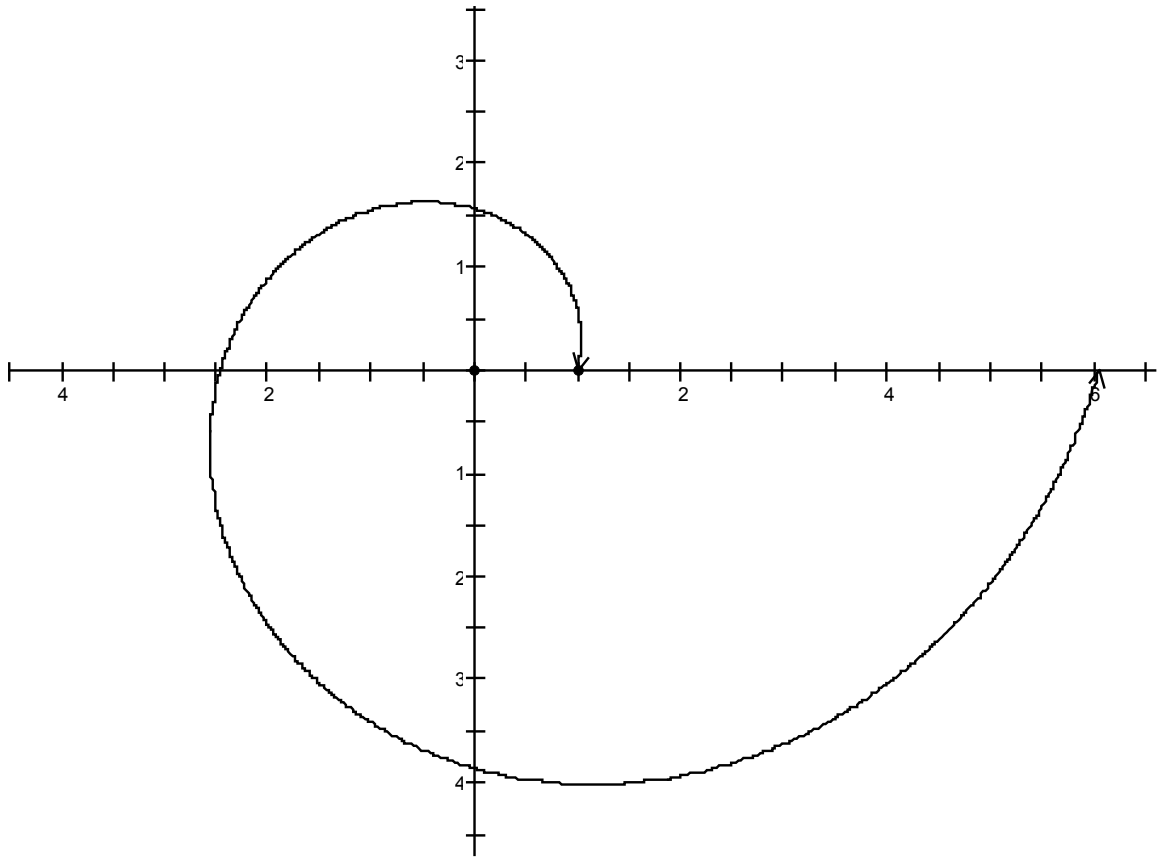
Now look at a Nautilus Shell



Not the same are they?

This is a Logarithmic spiral.

$$r = ae^{b\theta}$$



Here's a story, Jakob Bernoulli wanted a logarithmic spiral on his grave stone, but this is what he got.



C. S.
 JACOBUS BERNOULLI
 MATHEMATICUS INCOMPARABILIS
 ACAD. BASIL.
 ULTRA XVIII ANNOS PROF.
 ACADEM. ITEM REGIÆ PARIS. ET BEROLIN.
 SOCIUS
 EDITIS LUCUBRAT. IN LUSTRIS.
 MORBO CHRONICO
 MENTE AD EXTREMUM INTEGRA
 ANNO SAL. MDCCV. D. XVI AUGUSTI
 ÆTATIS L. M. VII.
 EXTINGTUS
 RESURRECT. PIOR. HIC PRÆSTOLATUR
 IUDITHA STUPANA
 XX ANNOR. VXOR
 CUM DUOBUS LIBERIS
 MARITO ET PARENTI
 EHEU DESIDERATISS.
 H. M. P.

RESURGO
 EADEM
 MUTATA

Note:

Daniel Bernoulli 1700-1782 came up with the famous Bernoulli principle.

Jakob Bernoulli, his uncle is the one with the wrong spiral on his gravestone.

Jakob had two brothers Johann and Nicolaus who were also famous mathematicians.

Daniel was Johann's son.

Daniel had a brother Johann II who was also a famous mathematician.

Johann II's son Johann the third was also a famous astronomer, geographer and mathematician.

Johann also had a son Jakob II who was a famous mathematician.

Makes you realize how little you and your family has done, :-).

Here's a family tree.

