

fibonacci and other spirals pdf

By definition, the first two numbers in the Fibonacci sequence are either 1 and 1, or 0 and 1, depending on the chosen starting point of the sequence, and each subsequent number is the sum of the previous two.

Fibonacci number - Wikipedia

In geometry, a golden spiral is a logarithmic spiral whose growth factor is ϕ , the golden ratio. That is, a golden spiral gets wider (or further from its origin) by a factor of ϕ for every quarter turn it makes. A golden spiral with initial radius 1 has the following polar equation:

Golden spiral - Wikipedia

Fabulous Fibonacci. Download the PDF version of this lesson plan.. Introduction. Fibonacci numbers are an interesting mathematical idea. Although not normally taught in the school curriculum, particularly in lower grades, the prevalence of their appearance in nature and the ease of understanding them makes them an excellent principle for elementary-age children to study.

Fabulous Fibonacci - Mensa for Kids

The Pythagorean 3-4-5 triangle is the only right-angle triangle whose sides are in an arithmetic progression. $3 + 1 = 4$, and $4 + 1 = 5$. The Kepler triangle is the only right-angle triangle whose side are in a geometric progression: The square root of phi times $\phi = 1$ and $1 \times \phi = \phi$.

Phi and Fibonacci in Kepler and Golden Triangles - The

Golden Ratio, Phi, 1.618, and Fibonacci in Math, Nature, Art, Design, Beauty and the Face. One source with over 100 articles and latest findings.

The Golden Ratio: Phi, 1.618 - Golden Ratio, Phi, 1.618

Two-dimensional Geometry and the Golden section or Fascinating Flat Facts about Phi On this page we meet some of the marvellous flat (that is, two dimensional) geometry facts related to the golden section number Phi.

Two-dimensional Geometry and the Golden section

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Conference Sessions and Books Carolyn Yackel and sarah-marie belcastro co-organized three mathematics conference sessions, each of which included a sequence of talks and a mathematical fiber arts exhibit. We have co-edited two books on mathematics and fiber arts written for crafters, mathematicians, and mathematics educators.

The Home of Mathematical Knitting - toroidalsnark.net

$\phi = \frac{1 + \sqrt{5}}{2}$ $\phi^2 = \phi + 1$ $\phi^{-1} = \phi - 1$ $\phi^{-2} = 2 - \phi$ $\phi^{-3} = \phi - 2$ $\phi^{-4} = 3 - 2\phi$ $\phi^{-5} = 5 - 3\phi$ $\phi^{-6} = 8 - 5\phi$ $\phi^{-7} = 13 - 8\phi$ $\phi^{-8} = 21 - 13\phi$ $\phi^{-9} = 34 - 21\phi$ $\phi^{-10} = 55 - 34\phi$ $\phi^{-11} = 89 - 55\phi$ $\phi^{-12} = 144 - 89\phi$ $\phi^{-13} = 233 - 144\phi$ $\phi^{-14} = 377 - 233\phi$ $\phi^{-15} = 610 - 377\phi$ $\phi^{-16} = 987 - 610\phi$ $\phi^{-17} = 1597 - 987\phi$ $\phi^{-18} = 2584 - 1597\phi$ $\phi^{-19} = 4181 - 2584\phi$ $\phi^{-20} = 6765 - 4181\phi$ $\phi^{-21} = 10946 - 6765\phi$ $\phi^{-22} = 17711 - 10946\phi$ $\phi^{-23} = 28657 - 17711\phi$ $\phi^{-24} = 46368 - 28657\phi$ $\phi^{-25} = 75025 - 46368\phi$ $\phi^{-26} = 121393 - 75025\phi$ $\phi^{-27} = 196418 - 121393\phi$ $\phi^{-28} = 317811 - 196418\phi$ $\phi^{-29} = 514229 - 317811\phi$ $\phi^{-30} = 832040 - 514229\phi$ $\phi^{-31} = 1346209 - 832040\phi$ $\phi^{-32} = 2178309 - 1346209\phi$ $\phi^{-33} = 3542248 - 2178309\phi$ $\phi^{-34} = 5720557 - 3542248\phi$ $\phi^{-35} = 9267836 - 5720557\phi$ $\phi^{-36} = 14985143 - 9267836\phi$ $\phi^{-37} = 24214619 - 14985143\phi$ $\phi^{-38} = 39183862 - 24214619\phi$ $\phi^{-39} = 63401201 - 39183862\phi$ $\phi^{-40} = 102575363 - 63401201\phi$ $\phi^{-41} = 166016974 - 102575363\phi$ $\phi^{-42} = 268682275 - 166016974\phi$ $\phi^{-43} = 434699049 - 268682275\phi$ $\phi^{-44} = 703381324 - 434699049\phi$ $\phi^{-45} = 1138081399 - 703381324\phi$ $\phi^{-46} = 1841462723 - 1138081399\phi$ $\phi^{-47} = 2979544122 - 1841462723\phi$ $\phi^{-48} = 4821006845 - 2979544122\phi$ $\phi^{-49} = 7792549569 - 4821006845\phi$ $\phi^{-50} = 12613556414 - 7792549569\phi$ $\phi^{-51} = 20306106083 - 12613556414\phi$ $\phi^{-52} = 32919662502 - 20306106083\phi$ $\phi^{-53} = 53226218585 - 32919662502\phi$ $\phi^{-54} = 86145881087 - 53226218585\phi$ $\phi^{-55} = 139365500672 - 86145881087\phi$ $\phi^{-56} = 225511381759 - 139365500672\phi$ $\phi^{-57} = 364876882846 - 225511381759\phi$ $\phi^{-58} = 590388264605 - 364876882846\phi$ $\phi^{-59} = 954899646364 - 590388264605\phi$ $\phi^{-60} = 1545287911069 - 954899646364\phi$ $\phi^{-61} = 2500187557433 - 1545287911069\phi$ $\phi^{-62} = 4045475468502 - 2500187557433\phi$ $\phi^{-63} = 6545662925935 - 4045475468502\phi$ $\phi^{-64} = 10590938394437 - 6545662925935\phi$ $\phi^{-65} = 17136601320372 - 10590938394437\phi$ $\phi^{-66} = 27727539714809 - 17136601320372\phi$ $\phi^{-67} = 44864141035181 - 27727539714809\phi$ $\phi^{-68} = 72591680750090 - 44864141035181\phi$ $\phi^{-69} = 117456821785271 - 72591680750090\phi$ $\phi^{-70} = 190048502535361 - 117456821785271\phi$ $\phi^{-71} = 307505324320632 - 190048502535361\phi$ $\phi^{-72} = 497553826856093 - 307505324320632\phi$ $\phi^{-73} = 785059151181454 - 497553826856093\phi$ $\phi^{-74} = 1252562977037547 - 785059151181454\phi$ $\phi^{-75} = 1937616803219001 - 1252562977037547\phi$ $\phi^{-76} = 2990179780256548 - 1937616803219001\phi$ $\phi^{-77} = 4527796573475549 - 2990179780256548\phi$ $\phi^{-78} = 6817976353732097 - 4527796573475549\phi$ $\phi^{-79} = 10345773127207646 - 6817976353732097\phi$ $\phi^{-80} = 15763749480940743 - 10345773127207646\phi$ $\phi^{-81} = 23981522608148390 - 15763749480940743\phi$ $\phi^{-82} = 36465272089089133 - 23981522608148390\phi$ $\phi^{-83} = 55446821577237523 - 36465272089089133\phi$ $\phi^{-84} = 84012093666326656 - 55446821577237523\phi$ $\phi^{-85} = 126458915755564179 - 84012093666326656\phi$ $\phi^{-86} = 190470909421890835 - 126458915755564179\phi$ $\phi^{-87} = 285928925177455014 - 190470909421890835\phi$ $\phi^{-88} = 431399840939345850 - 285928925177455014\phi$ $\phi^{-89} = 652770766117240864 - 431399840939345850\phi$ $\phi^{-90} = 984170691296186714 - 652770766117240864\phi$ $\phi^{-91} = 1486941457413427578 - 984170691296186714\phi$ $\phi^{-92} = 2251112148709614292 - 1486941457413427578\phi$ $\phi^{-93} = 3415282840016041870 - 2251112148709614292\phi$ $\phi^{-94} = 5166394988725656162 - 3415282840016041870\phi$ $\phi^{-95} = 7781677128741698032 - 5166394988725656162\phi$ $\phi^{-96} = 11748072117467354294 - 7781677128741698032\phi$ $\phi^{-97} = 17729749246209052326 - 11748072117467354294\phi$ $\phi^{-98} = 26777821363676406620 - 17729749246209052326\phi$ $\phi^{-99} = 40506892609885458946 - 26777821363676406620\phi$ $\phi^{-100} = 60784713973561865566 - 40506892609885458946\phi$

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