Hunches Section 0003 Other Constructors

OC Geometric Arithmetic
OC Equilateral Triangle
OC Ladder Circles
OC Mirrored Ladder
OC Inverse of the Circle
OC Circle vs Vectors

Hunches Section 0004

Periodic Function vs Log Spiral
Dice vs Encryption — Essay
Problems in Dynamics — Intro
Logarithmic Spiral vs Slide Rule

Here I am going to show 2 problems. They might not have anything in common, other than the fact that they use elementary mathematics and the emphases is placed on geometry. Everything numerical has a geometric explanation. This explanation is often much simpler than solving using pure numbers and equations. So the more a problem relates to geometry, the easier it is to relate it to something tangible like the things we see in every day life. This is nothing new.

It is sort of addition with geometry; you only need basic math and a little imagination to redraw shapes. It is as simple as doodling on a page. The only catch is that the shapes you create must have meaning. There has to be a reason behind the shape. It's back to the basic shapes we learned in grade school.

When I wanted to play with Prime numbers, I used geometry. Granted it is just a concept and may not work, but I searched for a solution from the geometry. It would take a lifetime of math knowledge of advanced mathematics, but I turned to the geometry to look for something more tangible that could have been missed.

Now however, we will concentrate on 2 little, new problems.

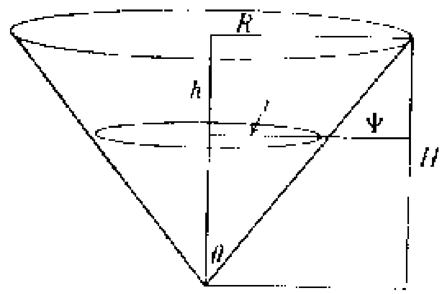
On to the problems:

Problem 1:

Problem 1.

Find formulas that express

a. ψ as a function of θ;
b. H as a function of θ and R;
c. h as a function of θ, R, and r;
d. θ as a function of r, h, and R;
e. R as a function of θ, r, and h.



This problem was excerpt from: UMAP Jornal: The Solar Concentrating Properties of a Conical Reflector, Don Leake, Page 3

Here we will solve number c: h as function of theta, R and r;

$$\frac{R}{\cos[180\text{-}\theta]} - \frac{r}{\cos[180\text{-}\theta]} = h$$

Problem 2:

C **37. Geometry** In part (a) of the figure, M and N are midpoints to the sides of a square. Find the exact value of sin θ. [*Hint:* The solution utilizes the Pythagorean theorem, similar triangles, and the definition of sine. Some useful auxiliary lines are drawn in part (b) of the figure.]

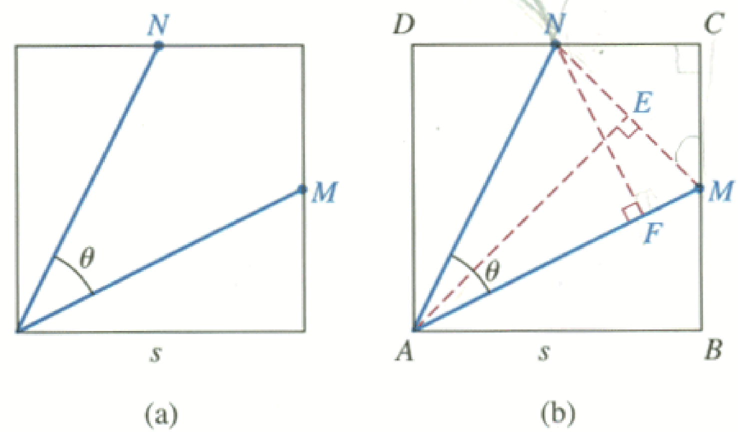


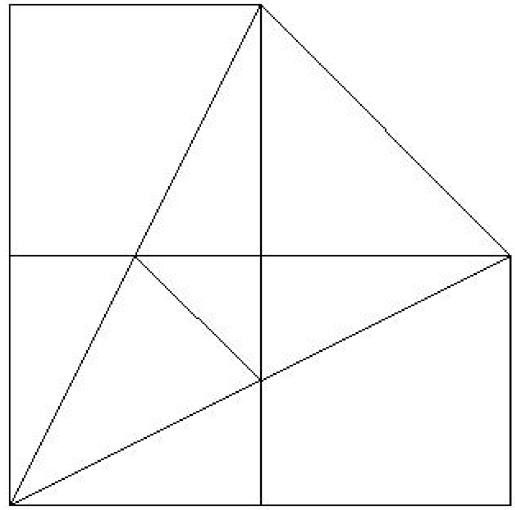
Figure for 37

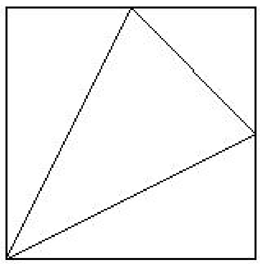
This problem was excerpt from: “Analytic Trigonometry with Applications”, Barnet; Ziegler, Page 37 problem 37

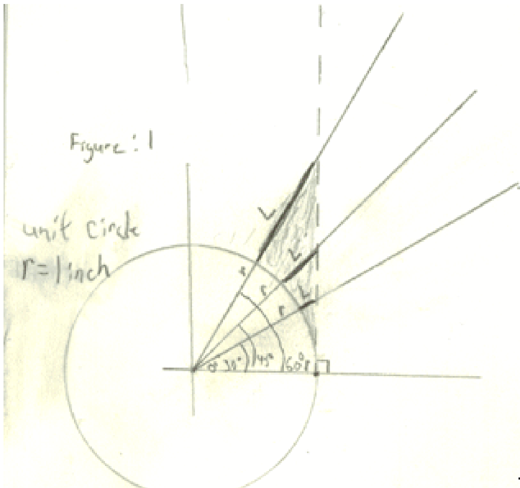
reference Scosine

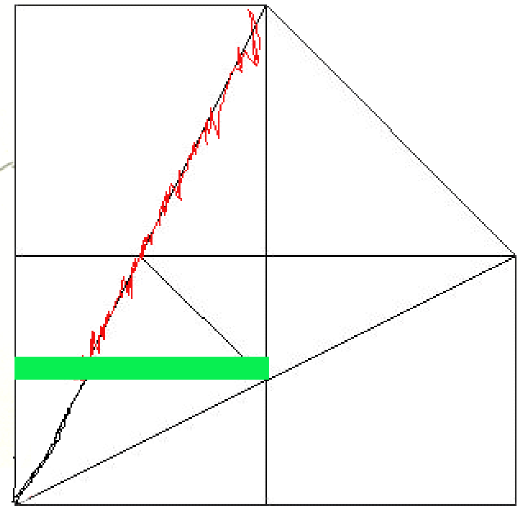
I’m working on a new section for Constructor’s Corner called: “Corners” It will feature work from other Constructors. That is anyone who wants to email about projects. I would also like to get math/design problems from more people over the Web.

The next problem was recommended to my by a friend: C. Blanco. He was looking for different ways to solve it. That is other than the obvious Pythagorean Theorem. My interest was to use the Scosine. Although, this may lead to a more complicated way. Or you could use similar triangles. The key thing to note is the problem solving process. These 2 problems are just an effort to share these problems while trying to show a non standard approach to a problem that would appear ordinary by other means.





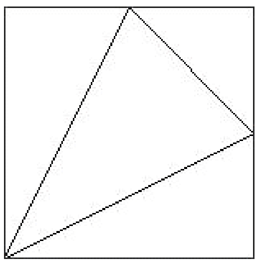




Red = radius + L

Green = radius = side of square

(r + L) / r = known proportion



This uses the Scos found in the chart and at Constructorscorner.com

This equation can be applied to the other quadrants. Just be sure that the $\cos(\theta_1) \geq \cos(\theta_2)$

We will start by comparing this new length "L" by the special angles of 30, 45, and 60 degress.
On a unit circle with:
let $\theta_1=0$
let θ_2=the current value in degrees
let $L = [(|\cos(\theta_1)| - |\cos(\theta_2)|) / \cos\theta_2] * r$

Value in deg	cos	$\|\cos(\theta_1)\| - \|\cos(\theta_2)\|$	$(\|\cos(\theta_1)\| - \|\cos(\theta_2)\|) / \cos\theta_2$	L	L+R	$\cos(\theta_2*r + \cos(\theta_2*L$
0	1	0	0	0	1	0
30	.866	.134	.155	.155	1.155	1.134
45	.707	.293	.414	.414	1.414	1.293
60	.500	.500	1.000	1.000	2.000	1.500
90	0	no value	no value	no value	no value	no value

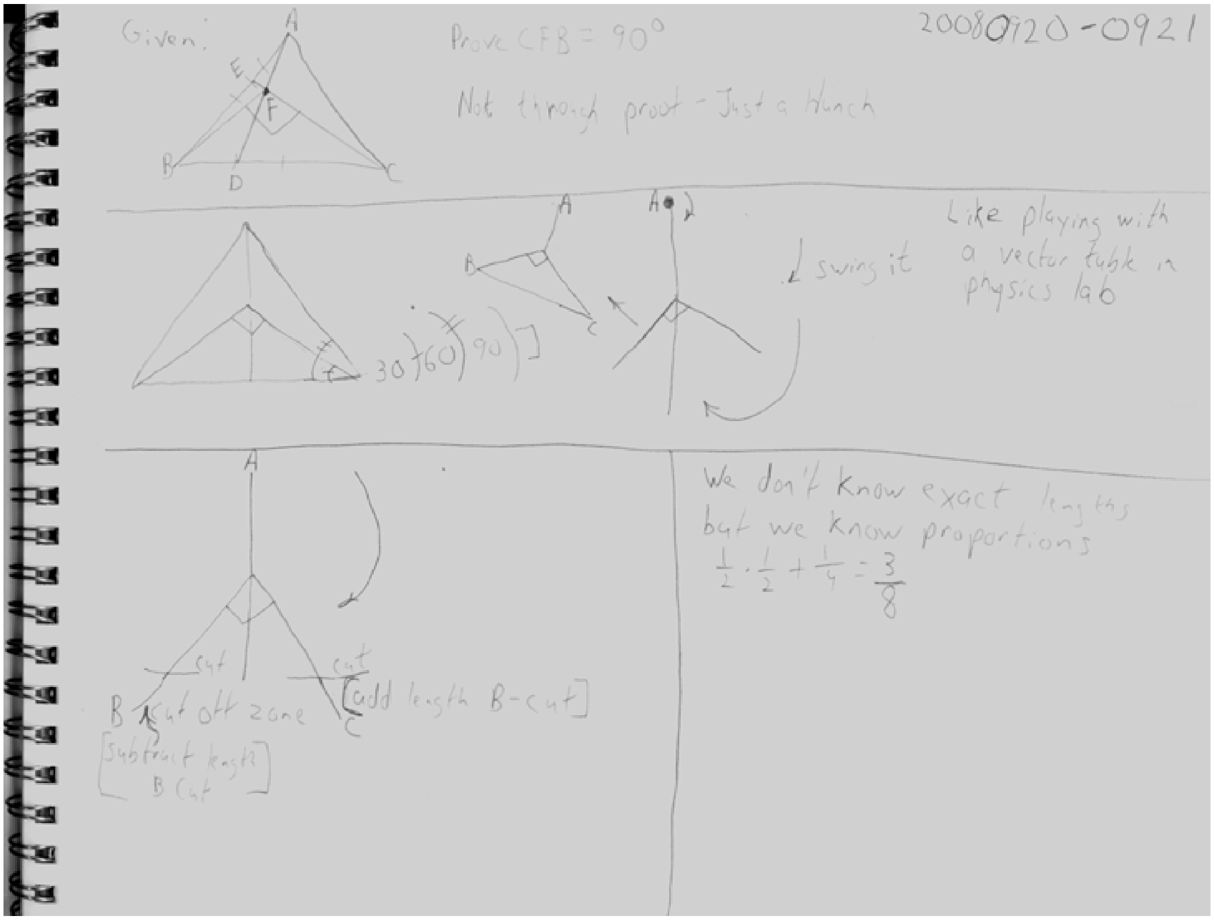
As θ_2 approaches 90 degrees the length of L and L+R approaches ∞ "infinity"

4) ABC is an equilateral triangle. D is a point on segment CB such that DB is half as long as DC. E is a point on segment AB such that EA is half as long as EB. F is the point of intersection of the segments AD and CE. Prove: angle CFB is 90 degrees.

[this is a good example of a proof where the coordinate geometry proof is straightforward but the classical geometry proof is quite difficult and very instructive to follow. I say to follow, because most people would not be able to do it on their own, but it is quite instructive to read and study the proof].

This is a problem sent to me by my email friend C. Blanco. He is always looking for challenging problems. He believes it is better to work on possible problems as compared to something nearly impossible such as a Prime number series. I have to agree with him. There is much new knowledge to be learned solving attainable solutions. You learn from them and you pick up new math tools for your toolkit.

Below is my attempt at a solution. It is not a complete proof but may create ideas for a different approach to the problem.



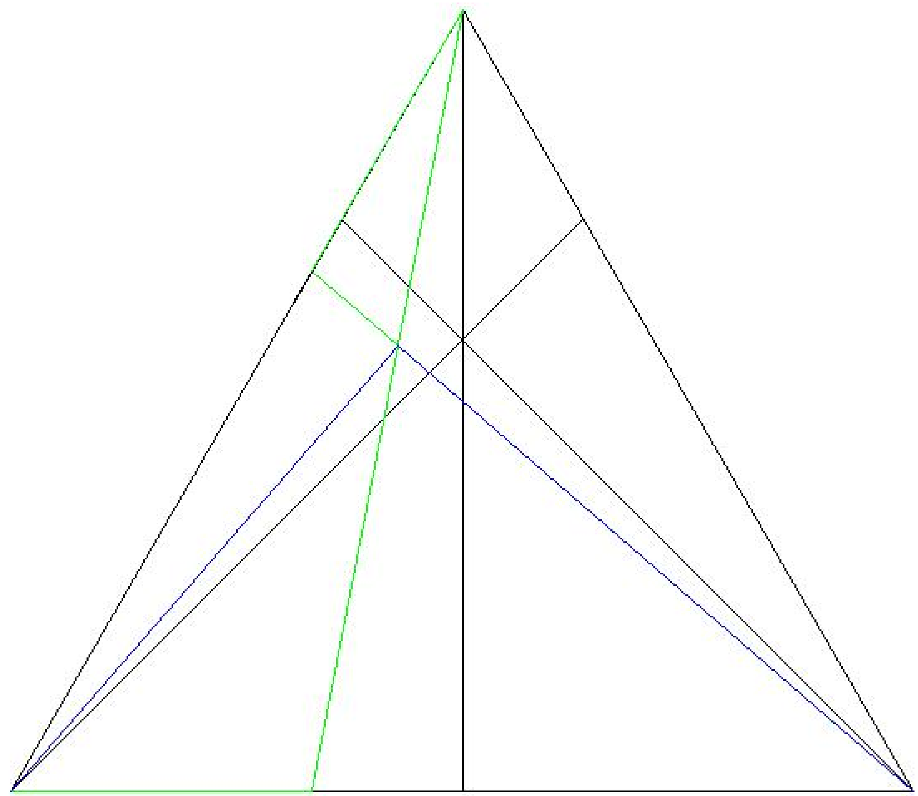
We know that since it is an equilateral triangle the 3 angles are each 60 degrees. And we know that we can form a 90-45-45 degree triangle inside of the bottom 60 degree angles. (I marked it as 30 deg in the picture but latter realized my mistake.)

Now the fun part. We rotate this 90 degree angle around point A. As we rotate we are subtracting length from side B while adding length to side C. But we must make sure to maintain the 90 degree angle.

It is sort of complex but think of a vector table like the ones used in physics class. As you pull one side the other moves. But in this case we are changing the lengths of those vectors instead of moving them.

We are basically working on the fact that a 45—45 right triangle has known sides so it is useful in are attempt to solve the triangle. We sort of "morph" the 45—45 right triangle so that the length of the sides change, but the 90 degree angle stays the same. It is sort of like using the 45—45 right triangle as a relative coordinate system.

Note that this problem could be easily solved using trigonometry to find the sides. In fact many attempts have lead myself to what the definition of the sine and cosine are. But I want to use nothing but classic geometry. I will only use the Pythagorean theorem. I doubt my solution is what the designer of the problem had in mind. They probably used logic. However after a long while of looking at this problem, I do not see it. But that is what makes math so fun.



20081015---1016

First we solve the 45---45 *right triangle*

using the Pythagorean Theorem

$$(c_{45})^2 = (a_{45})^2 + (b_{45})^2$$

$$c^2 = (\frac{1}{2}x)^2 + (x)^2$$

$$c = \frac{\sqrt{5}}{2}x$$

Now we find the length AG and compare it to AD. We use the difference to find the side of the "reference right triangle". This reference will be the amount that the one side of the right triangle, we are trying to prove 90 *degrees, has changed.*

$$c_{reference} = (c_{45} - a_{45})$$

by similar triangles

$$\frac{c_{reference}}{c_{45}} = \frac{b_{refence}}{b_{45}} = \frac{a_{reference}}{a_{45}}$$

$$c_{CFB} = BC = x$$

$$b_{CFB} = b_{45} + c_{reference}$$

again by Pythagorean Thereom

$$(a_{CFB})^2 = (c_{CFB})^2 - (b_{CFB})^2$$

$$where\ (b_{45})^2 = (\frac{1}{2}x)^2 + (\frac{1}{2}x)^2$$

$$= \sqrt{\frac{1}{2}x^2}$$

$$= \frac{7}{10}x$$

solve for a_{CFB} *and it is a start for proving CFB to be a right triangle*

NOTE: This is an ongoing project. I will update the site with better drawings once I am sure the solution is answering the problem. I already see one mistake that in should be 1/2 (c-a). But the problem will prove to work or just be an interesting idea. I know that better drawings of the steps are needed. Stay posted to Constructor's Corner for updates.

May the Creative Force be with You

20090215—0220

Here is a problem that can be solved many ways. My good friend C. Blanco sent it to me to solve using the methods of classical geometry, coordinate geometry, and trigonometry.

But being how I take the MacGyver approach to solving math problems, I have found an unconventional and improvised way to solve the problem.

Here is the problem:

Two buildings, I and II stand next to each other forming an alleyway between them. Two ladders, ladder A and ladder B in the alley cross each other touching a the point where they cross. The bottom of A sits against the base of building I, and leans over on building II. The bottom of ladder B sits against the base of building II, and leans over on building I. Ladder A is 3 meters long, ladder B is 4 meters long. The point where ladder A and ladder B cross is 1 meter above the ground. What is the width of the alleyway?

As shown in the following diagrams my approach is graphical. There is just about a graphical representation for anything in geometry. However a simple solution can be hidden among the lines drawn by the imagination.

I have tried to find the “circle inverted”. By this I mean taking a point and finding the circle that passes through it with the circle having a given radius. Not a perfect description, by any means, but if you can determine why the circles were drawn you, the reader, will understand.

This pictures are going to be confusing. In fact, it may not work at all. I am placing my early work here to get feedback and show the brainstorming process.

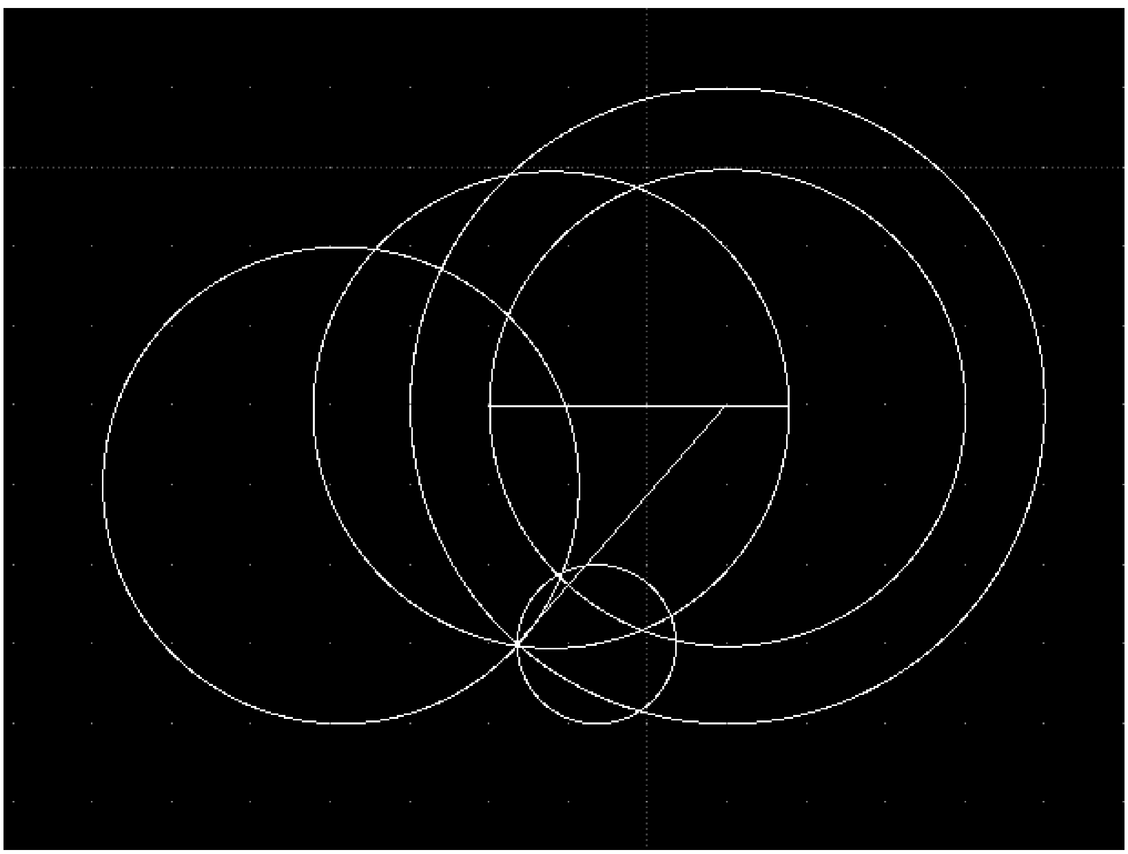
The geometric construction of the ladder problem uses only 3 to 4 values of circles to determine the angle of the ladder and the width of the alley. Those three values are the length of ladder A (which in the problem is 3 meters), the length of ladder B (4 meters), the height were the ladders cross (1 meter), and if needed the width of one ladder plus the distance where they cross (for example 1 + 3 or 4-1).

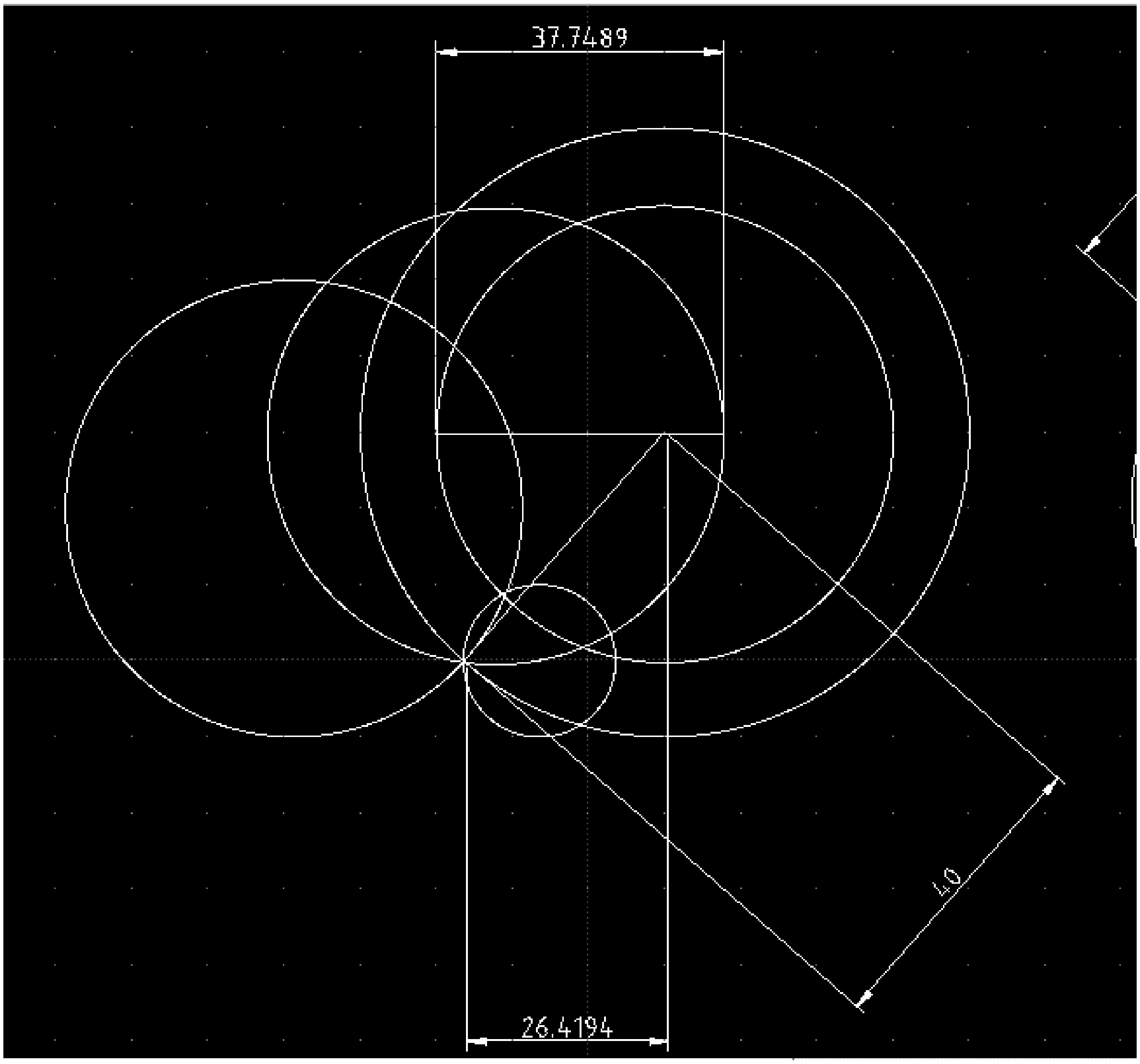
Construct 2 circles with a in proportion to a radius of 3 meters for one circle and a radius of 4 meters for the other respectively. From the very left, horizontal center of the 3 meter circle draw an arc of length 4 meters. (This is done because 3 + 1 = 4. The 1 is the length were 3 and 4 meet.) Where this arc is intersected by the horizontal of the center of the two beginning circles, is the end of a very important 3 meter circle. Where this 3 meter circle intersects the original 4 meter circle is the point where a new 3 meter circle and the original 4 meter circle intersect to for a length 1 meter high. The segment length from the center of the two original circles to this point of intersection is the length of the alley.

This is based on the theory that the alley way will always equal the horizontal length of one of the ladders. For a circle to intersect (given our measurements) at one it would have the arcs would have to move closer. And likewise they must be further apart to intersect at a higher height. (This description is not very strict mathematical description, but it helps to form a visual picture.)

And it is worth noting again that this is not proven. I have to review everything. It may also be impossible. Correct or incorrect the theory is presented. I will and more to the reasoning behind the drawing in future posts.

Click Here for the DXF file.

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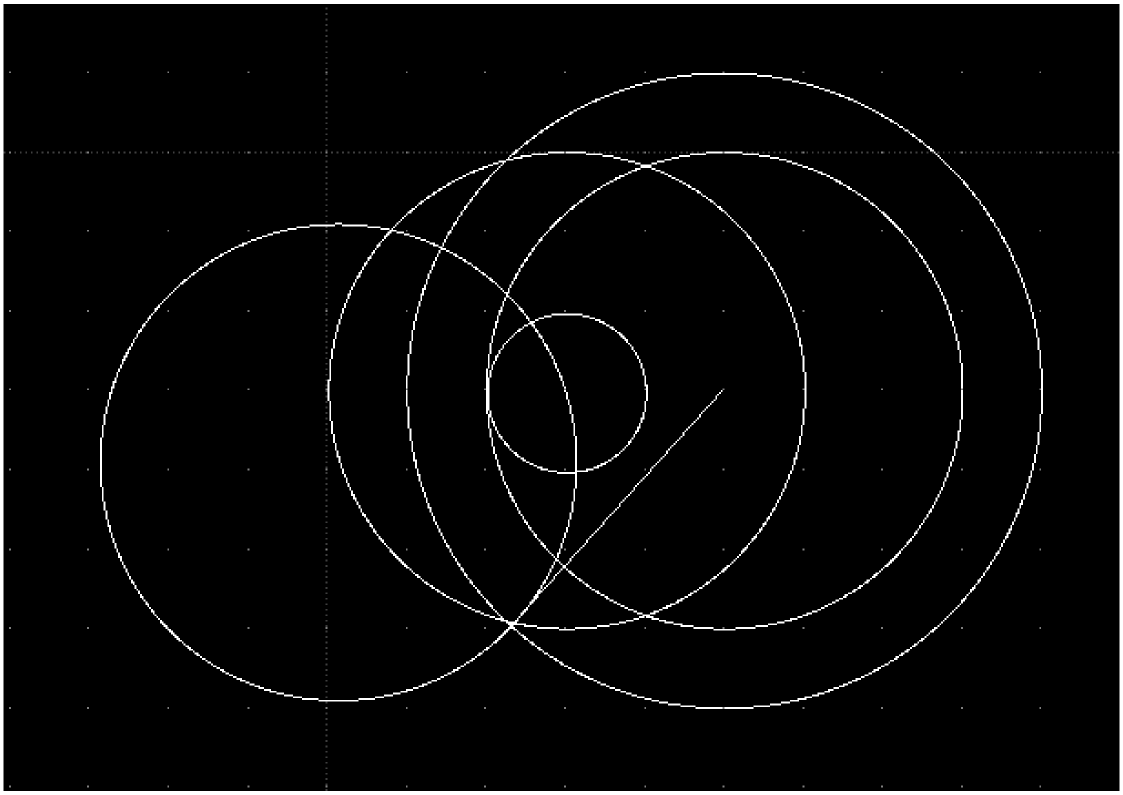
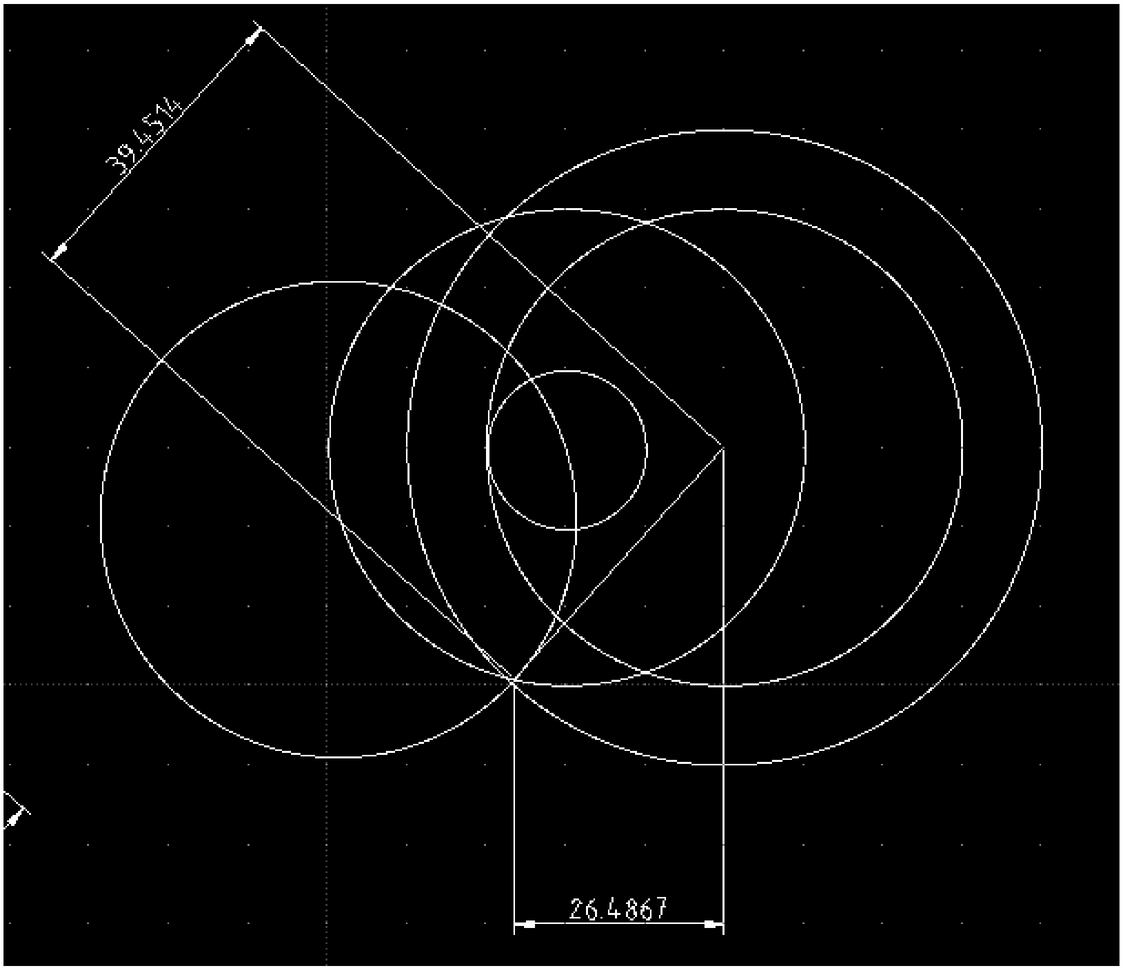
40
26.4194





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20090211-0226

For this problem refer to Ladder vs Alley problem.

The following is a preliminary sketch of the "Ladders in Alley" problem which was introduced for me to solve by my good friend C. Blanco. My solution is not presented in a formal mathematical way. Also my notes are quite messy. Hopefully I will be able to describe my approach.

It is important to note that this work is incomplete and as such may have many errors.

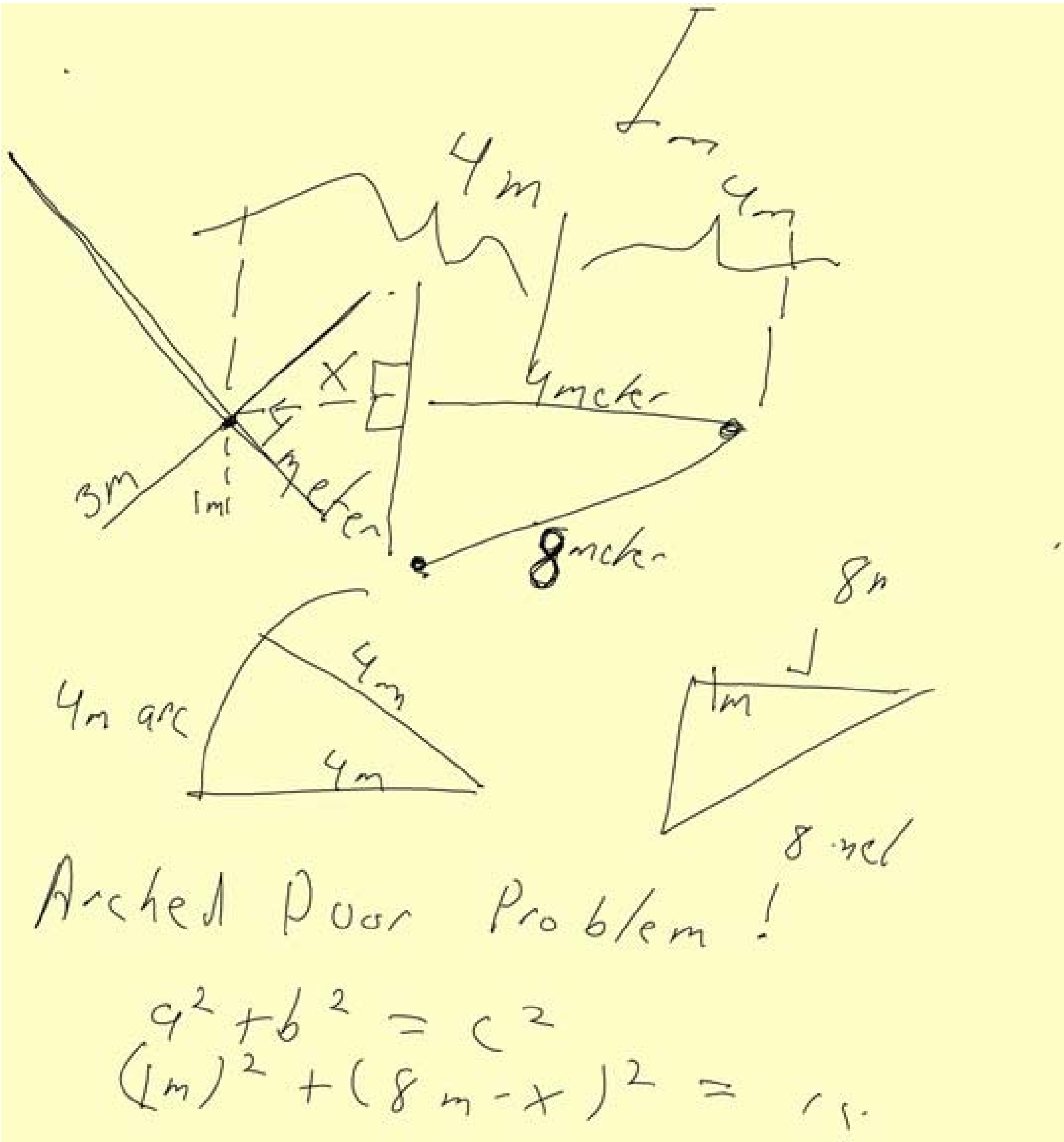
There is a type of geometry known as inversive geometry. I am not familiar with the subject. However the important basis to this work deals with the fact that the circular arc has an inverse. Think of a mirror placed between the arc that is formed by the 4 meter ladder. We use the base of the ladder as the radius through which the ladder rotates.

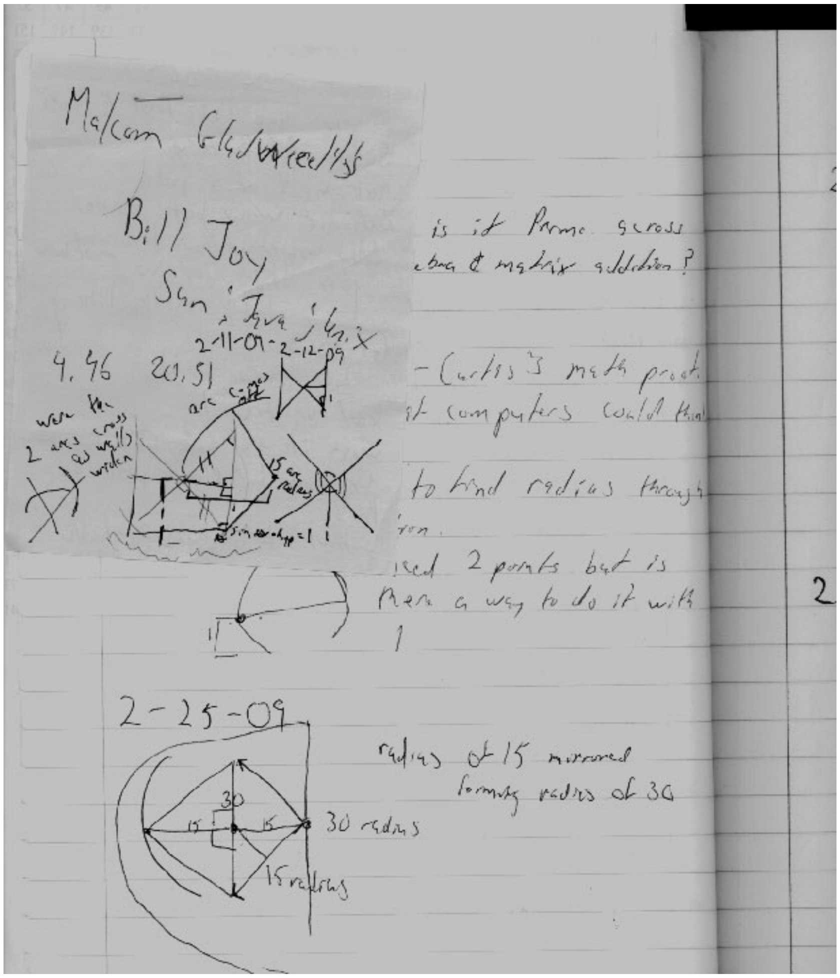
There lies a radius which will intersects two points on the ladder. Here I doubled the radius from 4 to 8. But I don't think it would matter what the mirrored length is as long as it is consistent between the two points.

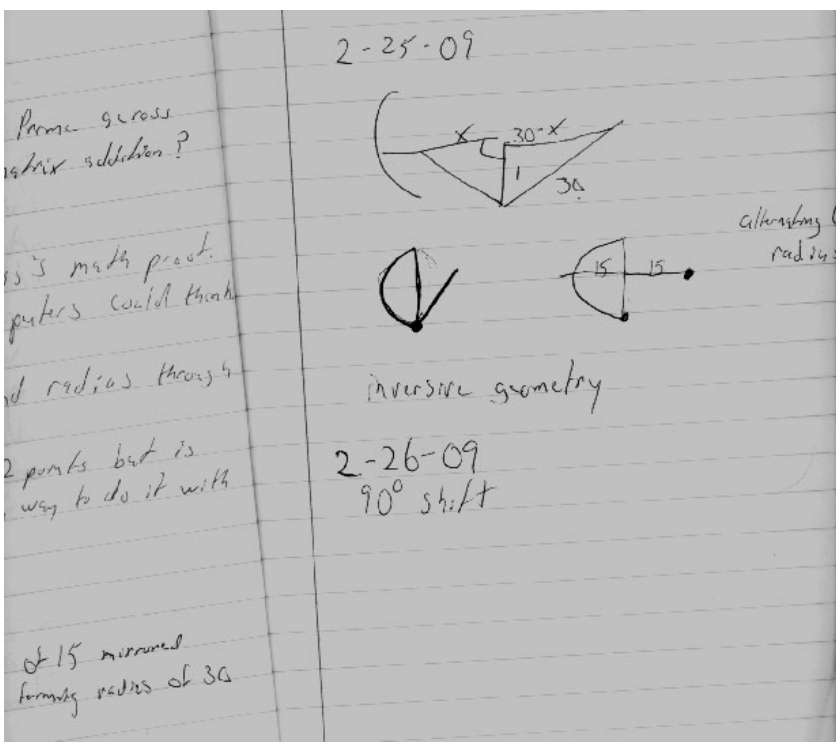
Then it is just a matter of finding the length of the 4 meter ladder corresponds to the 1 meter height. I do not solve the complete problem here, since once this triangle is determined the problem is easily solved using trigonometry.

Review the Arched Doorway Problem

Click Here for 1st DXF file.
Click Here for 2nd DXF file.


4m
4m
X
4meter
4 meter
3m
1m
8meter
8m
4m arc
4m
4m
1m
Arched Door Problem!
a² + b² = c²
(1m)² + (8m - x)² = c²


Malcolm Gladwell's
Bill Joy
Sun, Java, Unix
2-11-09 - 2-12-09
is it Prime across
& matrix addition?
- Curtis's math proof
computers could think
to find radius through
used 2 points but is
there a way to do it with
1
2-25-09
radius of 15 mirrored
forming radius of 30
30
15
15
30 radius
15 radius


2-25-09
x
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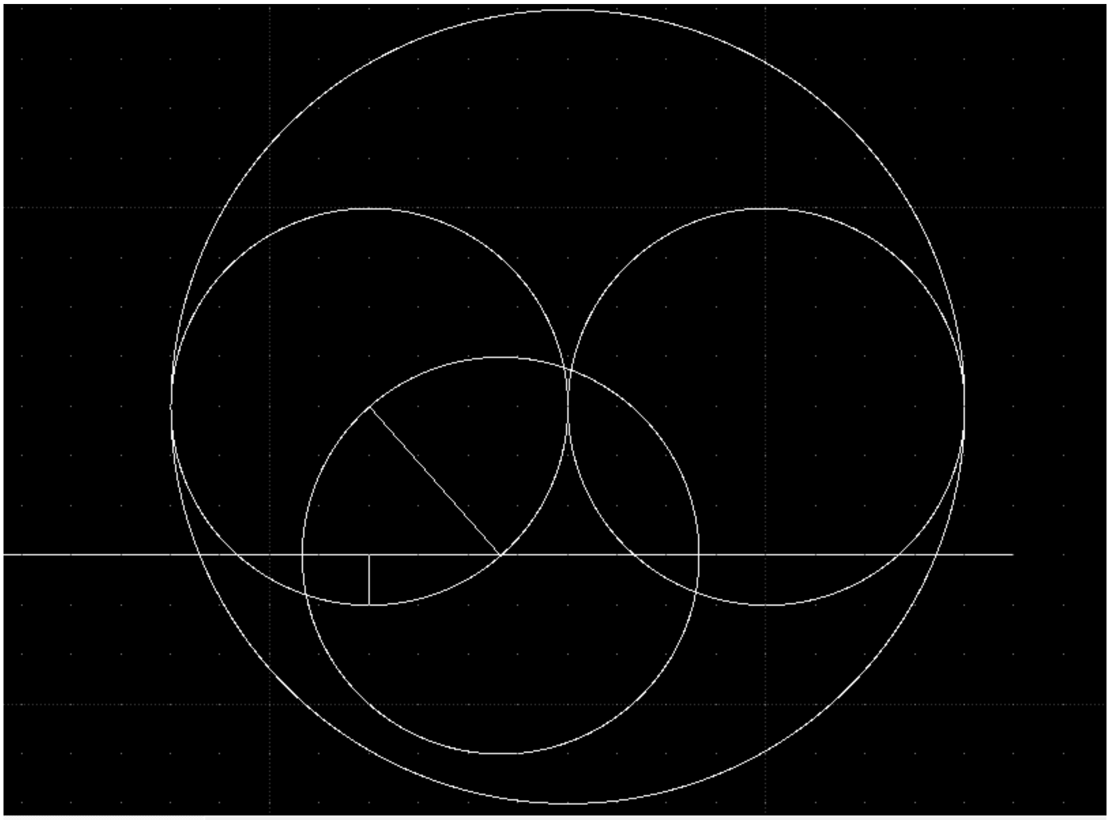
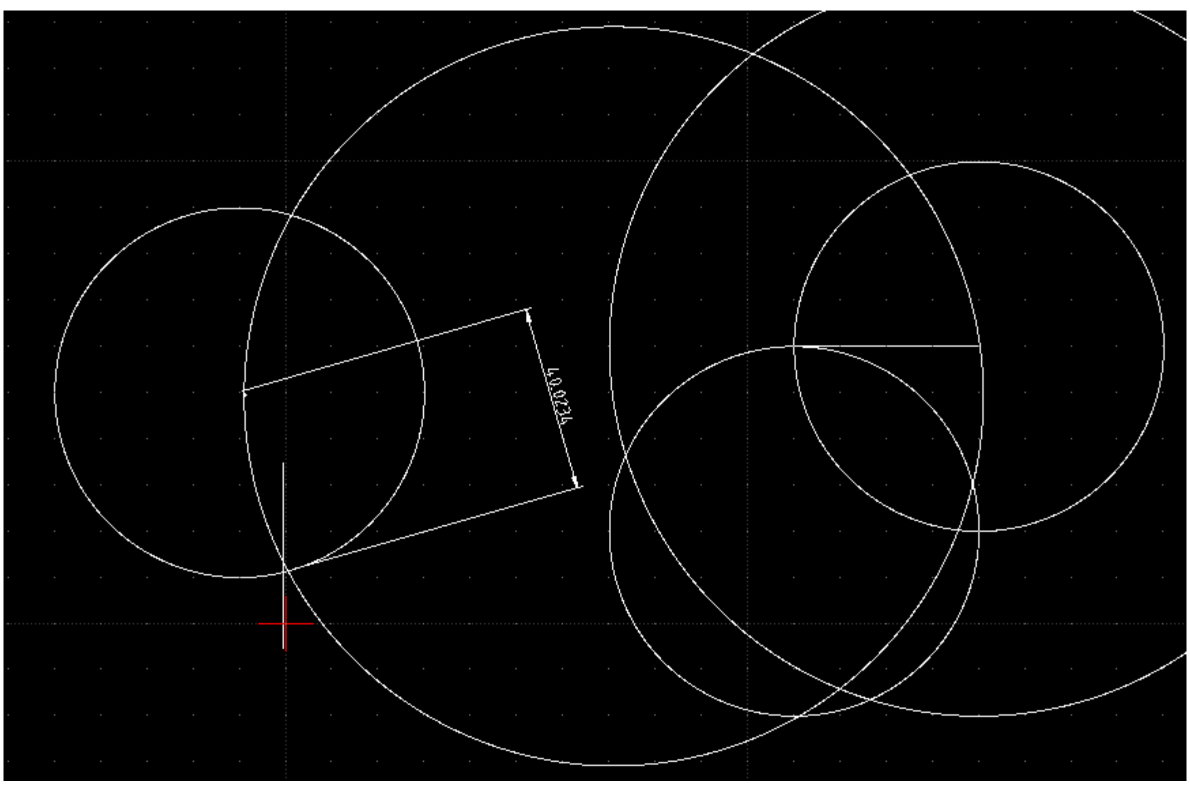
1
30
alternating
radius
15
15
inversive geometry
2-26-09
90° shift




4.00234

May the Creative Force be with You

20090314

For this problem refer to Ladder vs Alley problem.

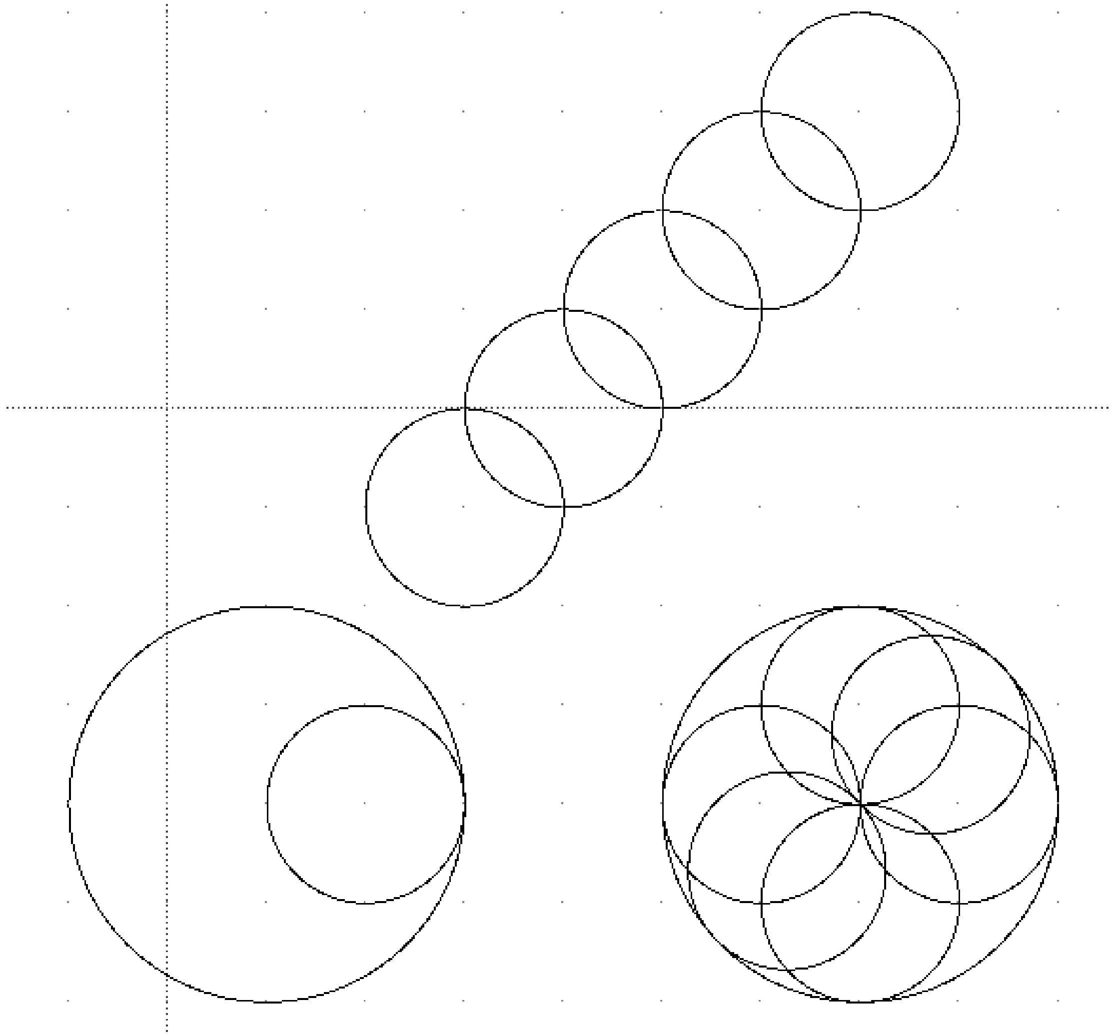
Inverse Circle

What is it that I am calling an "inverse circle" ? An example will explain. Suppose you, the mathematician, have a given radius and a given point. You could easily draw a circle of that given radius using the given point as the circles center. But let's say you want to draw a circle of a given radius with the point positioned on the circle's circumference. That is what I am referring to as the "inverse of the circle". It is probably not mathematically correct to call it that, but it will work to demonstrate an idea in geometry.

It is a simple observation to find this inverse circle. Take the given point and draw an arc of twice the radius of the given radius. On this arc's circumference, take the original, "given" radius and draw a circle. The point will be positioned on the new circle's circumference.

Now for some examples of how this knowledge may be useful. As you may recall from the ladder in the alley problem, the angle of ladders was determined by utilizing circle constructions. Drawing the inverse circle of the last paragraph is just one of the many possibilities. There are infinitely many positions on the circle's circumference that the given point could reside. So in order for the circle to be useful we must know certain values that are given by the problem. For instance in the ladder problem we knew the length of both ladders (3 meters and 5 meters respectively) and we knew the ladders crossed 1 meter above the ground. Now do you see the possibilities and applications of this observation!

Below are some CAD drawings of the inverse circle. Pay attention to the loops of the many circles. It is much like a spiral graph. There is much to be learned here.



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20090328 recorded

As we learned from the "ladder in the alley" problem, we have a graphical solution to the problem. So other than solving similar types of problems, there is a direct relationship to solving vectors!

Of course by simple inspection, we could draw an encompassing circle around the elements of a vector. This is plain common sense. But what if we were dealing with multiple elements such as a dynamics problem involving relative velocity. Would it then be possible to find many frames of reference by doing only the vector addition of one frame? We will see but first we must draw a graphical representation that must work with most if not all vectors.

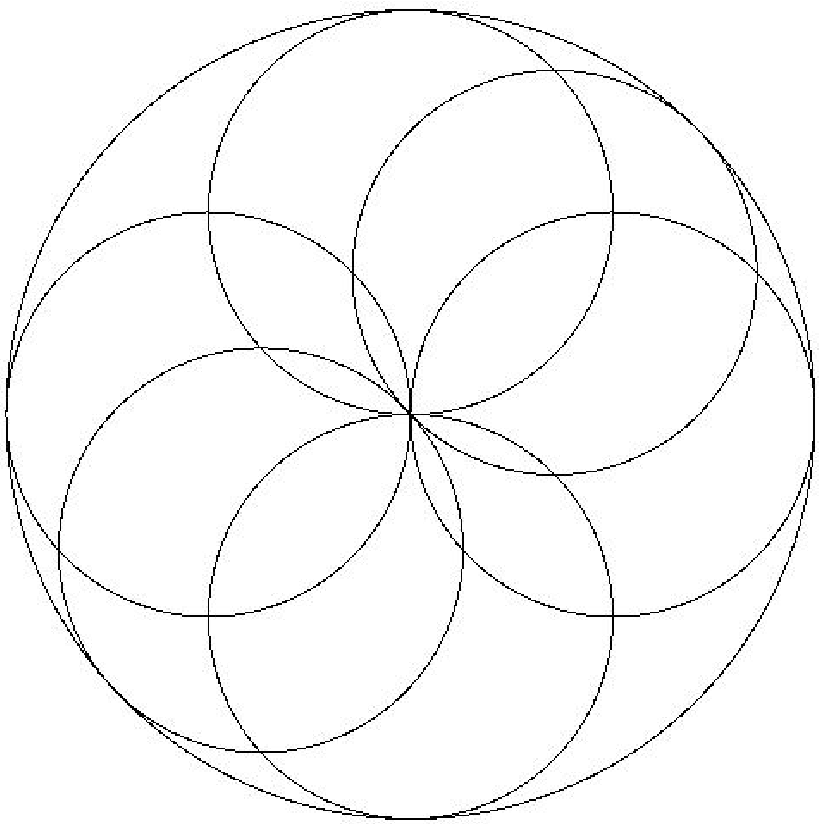
Click here to review dynamics problem about relative velocity.

Click here for DXF file of spiral.

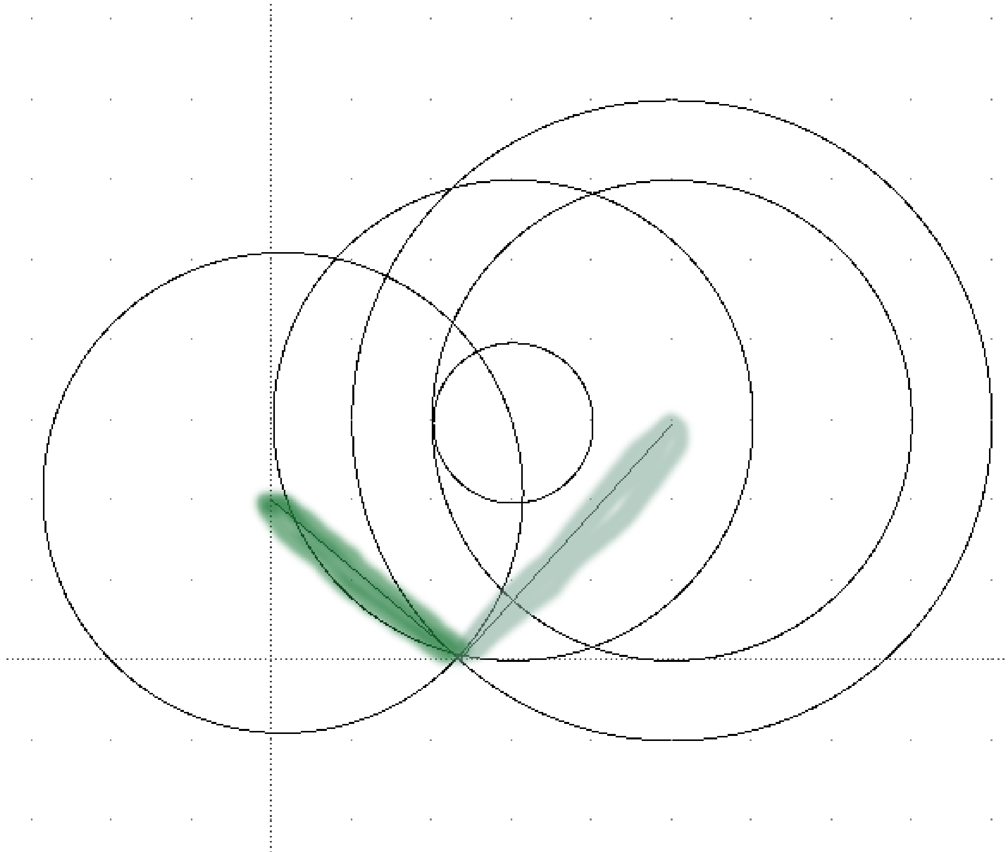
Click here for a DXF file of the dimension circle base pattern.

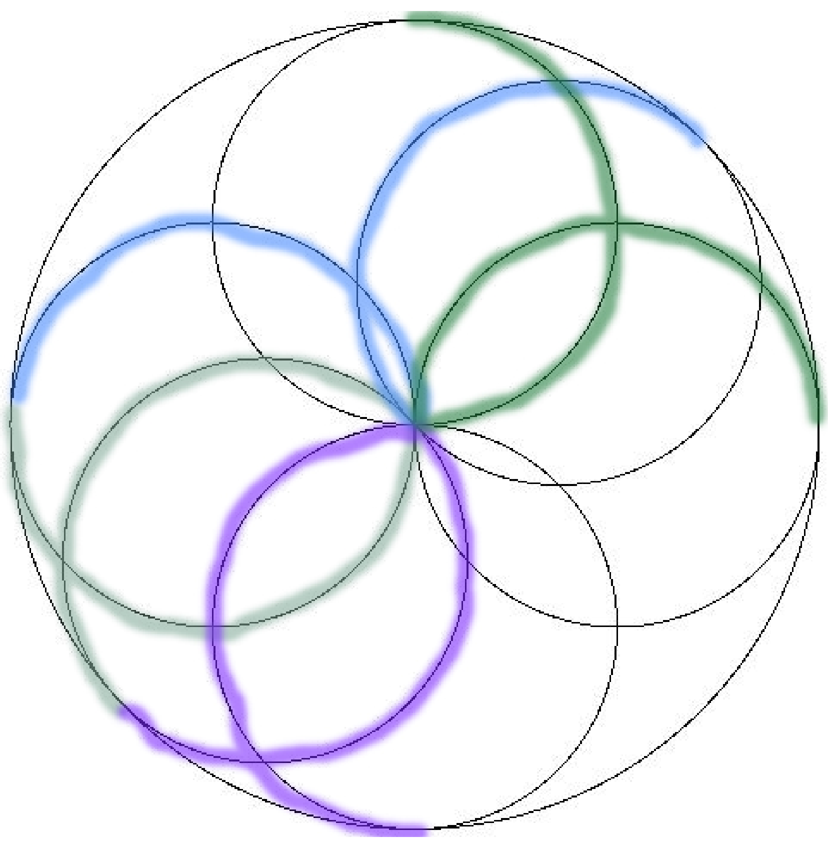
It is important to note that the reason such an easy, systematic way of solving this relative velocity problems is due to changing angular velocity. That is, the velocity apposed to a member that is rotating relative to a know velocity, can change. The angular velocity is going to change as the length of the circle changes. However we may still find something useful by using circles to explain vectors.

I am not exactly sure how this graphical relationship will look like, but I will start with a few ideas I've been working on. First, picture a spiral of 2 vectors that are aligned. (Aligned meaning they have their maximum and minium lengths occur at the same angle.) If we place 2 circle representing the maximum length of each vector inside one large circle that is the sum of the maximum length of the 2 vectors, we now have a picture of the vector addition. That is, at least for that one frame.



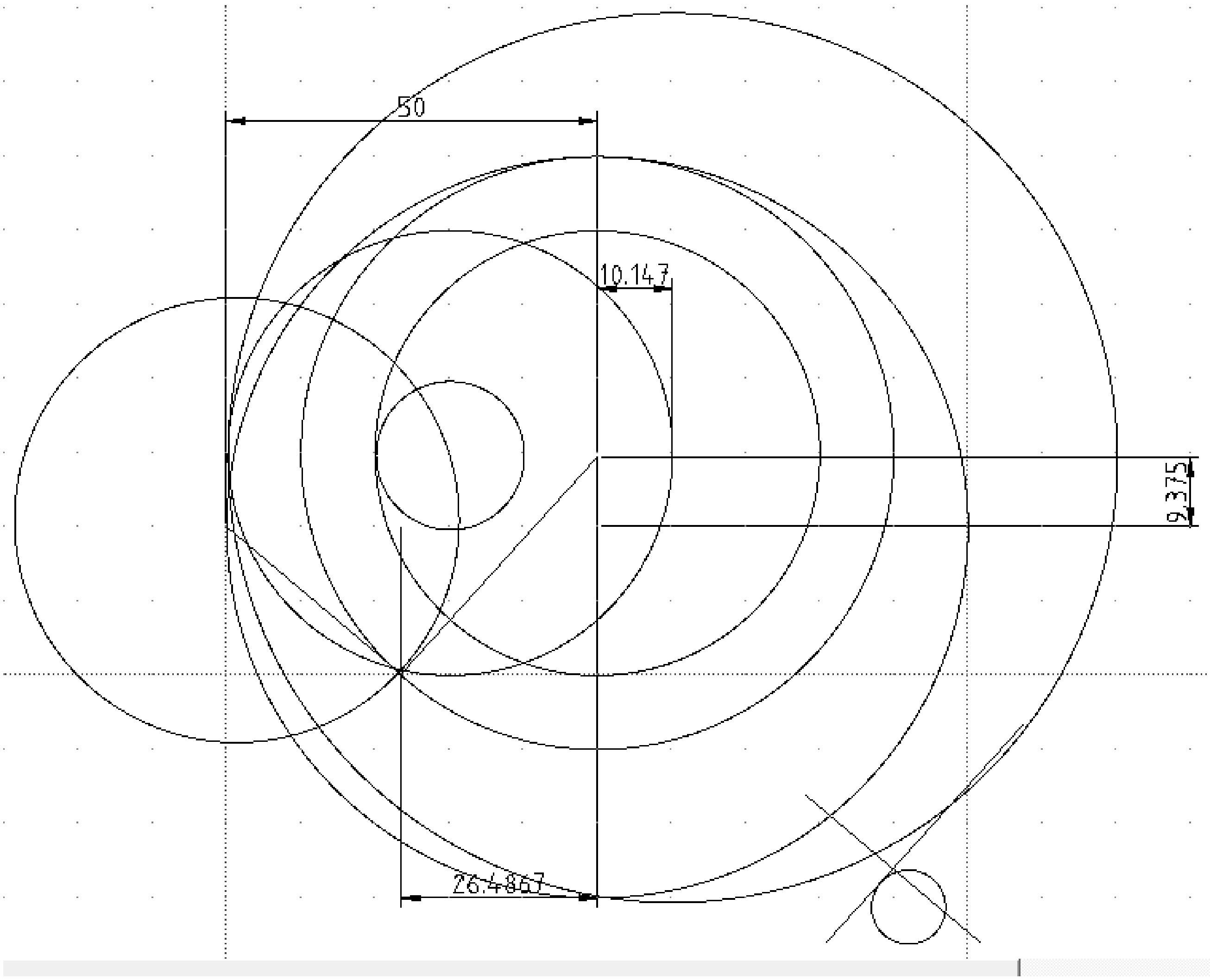
So with each different vector a circle representing its magnitude would be added to the previous circle. For the "ladder in the alley" problem a simple geometric construction solved the fact that the vectors crossed. The construction turned two crossing lengths into a tip to tail vector. That is why the construction is useful.





That pattern of the spiral may also prove to be useful. My theory is the length of the individual loops form in the geometry from their tangents, are equal. And equal the total length of the circle. This could be proved by comparing the loops to the original vector circle.

So back to the circles versus vectors, we can easily add circle to circle for how many members of the vector problem we have.



I know this write-up is basically stating the obvious. That is, what can be seen by anyone with any knowledge of vectors. Again the real difficulty in relative velocity problems is that the velocity is given at that instant. Any knowledge of changing angles is not enough to solve the problem. I just have a hunch about this problem. There may be something there. The question is "can it be turned into a useful, logical, and reproducible solution?"

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20081113—from beginning of logarithmic spiral theory 2007

The latest "Hunch" is just an essay. I have no mathematical prof for the following idea. It is just that, an idea.

Previously it was theorized that a logarithmic spiral could be used to find an equation to the series of Prime numbers. This idea can be applied to all series.

We found a parabola that described Prime numbers occurring every Pi radians. The pattern is not easily seen. But we can use a logarithmic spiral to describe that parabola. That is based on the fact that all parabolas can be described by a logarithmic spiral.

So there is an increase in the spiral with each turn. But the question remains: Can the pattern of Prime number be described by two geometric figures that increase proportionally? In other words, does the parabola actually reveal the pattern? And can that parabola be described by a logarithmic spiral?

It is well known that a logarithmic spiral can be shifted by a line. But building on to this idea we may be able to find a geometric figure that can be used to find a pattern in any series. The idea is: What would happen if we use a periodic function (such as a sine curve) and use it to shift a logarithmic spiral? That is the shift can alternate "bending" towards and away from the center of the spiral. Also note what is already known about periodic functions such as the sine curve. They can be manipulated or transformed to fit unknown curves. Such transformation has now just become that much powerful.

The purpose of the periodic function would be to show how much the logarithmic spiral had been shifted from the center reference point. Just as a line can refract and bend a logarithmic spiral in a specified direction, a periodic or any function could be used to show the change the pattern takes from an ordinary logarithmic spiral equation. In other words if the pattern (Prime numbers) could not be described by a logarithmic spiral or parabola by them selves, the pattern may be described by a function that changes the shape of a logarithmic spiral.

Challenges to this theory:

First we have to describe how the periodic function changes or transforms the logarithmic spiral. For example a sine curve could start at the center of the logarithmic spiral and "cycle" (where the function occurs) at an angle perpendicular to the horizontal.

There may also be a problem with the math being too complicated. That might be solved by the fact that usually the numbers of the series are known. That means a approximate logarithmic spiral can be “fitted” to the numbers. Perhaps over a small portion of this makeshift logarithmic spiral a pattern will occur that can describe the function that transforms the logarithmic spiral.

And of course the whole theory behind the logarithmic spiral being able to solve series needs to be proved. But remember, the golden spiral, involutes, are types of logarithmic spirals and themselves are formed by series.

Review: Prime Summation

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Hopefully it is clear what is being attempted to be solved here. I will post updates to better explain and hopefully solve this problem. This is a good group project. If you have read this and want to work on a problem email: trurlthe_constructor@hotmail.com . Also more math can be found in the math_hunches section of Constructor’s Corner.

20081212—1220

The following essay is going to attempt to show a relationship that doesn't appear to be a complete description. However if you follow along you, the reader, may find within its contents that the idea has some merit.

You, the reader, may be familiarized with the theory of finding a series using a logarithmic spiral from this website, Constructors Corner. It proposes that any series (a pattern among numbers) can be described by a logarithmic spiral.

But the question arises: Is the theory true? Can every pattern be described by a logarithmic or approximate logarithmic spiral?

In order to answer those questions we, the mathematicians, must find a case in which the logarithmic spiral can not find the pattern. My guess is you, the reader, is thinking Prime numbers. Well that guess may or may not be true. That is, Prime numbers might be able to be described by a logarithmic spiral.

Back to the original question: Can we, the mathematicians, find a series that cannot be described by a logarithmic spiral? And the answer is probably "Yes".

Think of 3 dice that are each a 6 sided cube. Each of the sixth sides corresponds to numbers 1 through 6. Using these dice a three digit number is chosen. The interesting part is that this number appears to be random with no pattern, however, the dice had to be turned a certain direction to get this number. So if another 3 digit number is chosen there would appear to be no relation to the first number, again, however, there is a geometric process or direction that the dice must turn to end up with the second, 3 digit number.

So even though the numbers appear random there is a pattern because the position on the dice is known. This is a complicated pattern. Imagine it increasing exponentially with numbers in the millions or more turns on dice of a greater number of sides! There would appear to be no pattern at all. Or at least not one which could be solved.

Does this describe Primes? I believe that all the processing power in the World would not solve a Prime number pattern. It would have to be done graphically. Does a logarithmic spiral or a logarithmic spiral shifted by a function solve it? It is probably wishful thinking or estimated concept. However it is a start and may lead to better ideas.

By the way, the dice analogy came from looking at “Christmas Day” days till Christmas blocks. The numbers of the day move in a pattern according to the placement of number of the day on the dice.

Also if you could solve a pattern or series in this way you, the cryptographer, could solve many types of encryption by finding a pattern where none seems present. Imagine if we took the original 3 dice and rolled them. That would be comparable to encrypting them. It may appear we have no way to decrypt the numbers. However if we know the geometry of the dice, all the numbers and turns will produce that encrypted number a certain number of ways. In other words we can eliminate many of the options if the “numbers and position” that fill the dice don’t line up. The pattern only fits so many ways. It is not meant to be implied that this is an easy task. But a geometric model (maybe a logarithmic spiral) may help.

But until then...

May the Creative Force be with You

Hopefully it is clear what is being attempted to be solved here. I will post updates to better explain and hopefully solve this problem. This is a good group project. If you have read this and want to work on a problem email: trurlthe_constructor@hotmail.com . Also more math can be found in the math_hunches section of Constructor’s Corner.

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20091909

The following are dynamics problems taken from “Applied Mechanics For Engineering Technology” 5th edition, Keith M. Walker

These 2 problems are one’s that I had a difficult time understanding. One is on relative motion and the other uses the instant center rotation. I have reviewed these problems because they always gave me difficulty. Over several updates to this website (Constructors Corner), I hope to explain to others why I could never solve them. And maybe even try something new with them.

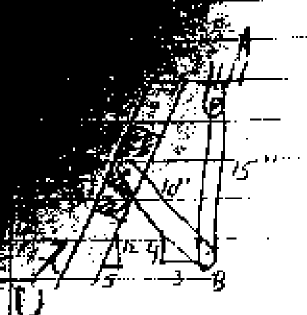
I know the following images are difficult to see due to the fact I used a scanner to scan the notebook pages. But I intend to write out the correct solutions to these problems in a clearly seen format.

Keep in mind, this is only a preview of the work.

Problem 1:

Prob 12-10,
Tuesday,
2-23-79

Prob 12|10| 385



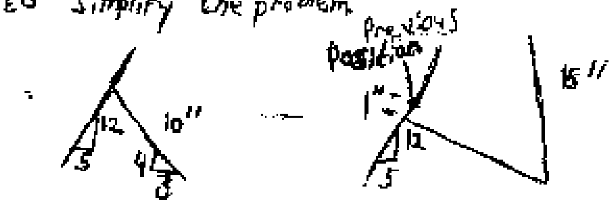
Given: Figure A5;
velocity of C is 26 in./sec

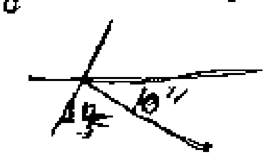
Find: VB, WAB

Equation: $\vec{V_B} = V_C + \frac{V_B}{C}$

B moves according to C. How fast C moves is known. How B moves in relationship to C must be found.

The solution uses a distance of 1'' (downward) for C to simplify the problem.





CB at start position (given position)

starts at angle
$\tan^{-1} \frac{4}{3} = 53.13°$

$\angle ABC = 36.87°$

the horizontal component of the angle is $\cos 53.13° \cdot 10'' = 6.00''$

AB is ⊥ with horizontal

CB when slider moves 1"

$\tan^{-1}\frac{12}{5} = 67.38°$ CB changes by a length of:

$-(\cos 67.38 \times 1") + (\cos 45° \cdot 10")$

$= 6.69645$

$= 6.69"$

(linear if AB moved linear)

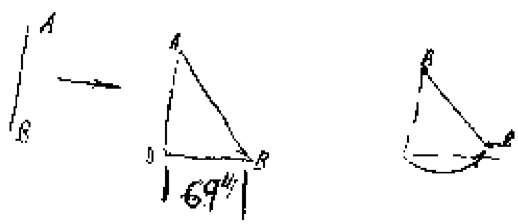
$\sin 67.38° \cdot 1" = .923$

$\sin 53.8° \cdot 10" - .923 = 7.0769$

$\sin x \cdot 10" = 7.0769$, $x = 45°$

Distance AB moved is

$6.69 - 6.00 = .69"$



$15" \cos \angle ABD = .69"$

$\angle ABD = \cos^{-1}(.69"/15)$

$= 87.36$

Change in $\angle ABD = 90 - 87.36 = 2.64°$

time to move this far

26 in per second $\frac{10}{26 \text{ in/sec}} = .385$ sec

$\omega = \frac{\Delta\theta}{t}$

$= \frac{2.64° \times \frac{\pi}{180} \text{ rad}}{.385 \text{ sec}}$

$= .119522$ **.12 rad/sec**

$v = r\omega$

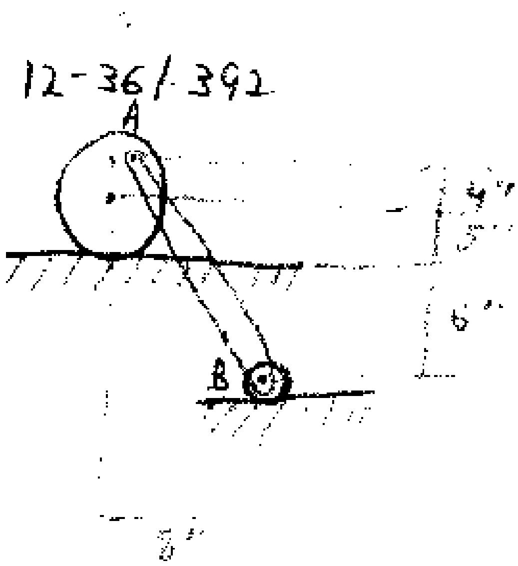
$= 15" \cdot .12$ rad/sec

$=$ **1.79 in/sec**

Problem 2, Instant Center of Rotation:

Pg 392

12-36 / 392



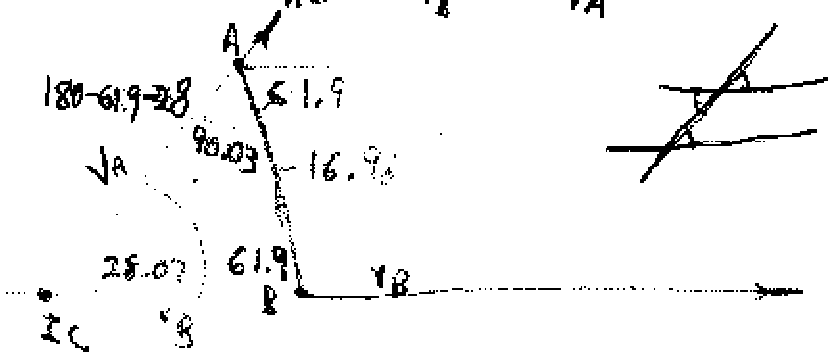
Given: Figure AS
Larger wheel turns at 8 rad/s clockwise

Find: Velocity of B

Have to determine the instant center.

By definition of instant center

$$\omega_{AB} = \frac{V_B}{r_B} = \frac{V_A}{r_A}$$



$$V_A = \frac{\sin 61.9 \cdot 16}{\sin 28}$$

$= 31.83$

$= 31.83$

$$\frac{VB}{\sin 90.03^\circ} = \frac{AB}{\sin 28.07^\circ}$$

$\cos 28^\circ \cdot X = 8$

$x = 16.9847$

$= 16.98$

$$VB = \frac{\sin 90.03^\circ \cdot 16.98}{\sin 28.07^\circ}$$

$= 36''$

$\therefore$ $\omega_{AB} = \frac{V_A}{R_A}$ $V_A = 8\,rad/s \cdot 9\,in$

$= \frac{72\,in/s}{31.87\,in}$ $= 72\,in/s$

$= 2.26\,rad/s$

$\omega_{AB} = \frac{V_B}{R_B}$

$V_B = R_B \cdot \omega_{AB}$

$= 36'' \cdot 2.26\,rad/s$

$= 81.42\,in/s$ →

$\therefore$ The velocity of B is 81.42 in/s to the right

CHECK : review steps

But until then...

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20090202—0208

Ok, sometime ago I posted on Constructor's Corner that a logarithmic spiral could be used to find a pattern in Prime numbers. And, I still believe so.

But first we should look at the patterns in series that are already described by a logarithmic spiral. Such series as Fibonacci series, logarithmic series are already series that the logarithmic spiral describes. We need to start with simpler series than something as puzzling as "a pattern in Prime numbers".

On a recent comment to my YouTube video, a viewer commented that it has been proven that no polynomial equation describes Prime numbers. So my equation x^2+12.0958x-17.0219 could not describe Prime numbers. That is an equation of a parabola. However, I am not stating that the parabolic equation just mention is the pattern. Instead, I theorize that it is a parabola on which the Prime numbers that fall on it occur in a pattern. This pattern is what I am trying to use the logarithmic spiral to reveal the pattern.

My new interest is the slide rule. Slide rules use proportions to multiply and find values of logarithms. So if a logarithmic spiral did solve many types of series, instead of a complex computer program, the slide rule would easily compute, reveal, and solve many different types of series. That is something that they probably already do.

A video on YouTube showed how numbers corresponded along a straight line, once the values on the lines were spaced disproportionally, according to the series. It makes more since on the video at this link:

So in theory, I believe that a logarithmic spiral can explain many series. That is a logarithmic spiral or an approximate logarithmic spiral. By approximate logarithmic spiral I mean that the spiral is shifted by a function a distance from its original starting place.

The difficulty comes in finding such an equation that will describe the logarithmic spiral that describes the series. That is the logic behind starting with a simple series instead of the ultra-complex Prime number series. So even if we cannot find a pattern in Prime numbers, the theory may still be of some merit.

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