_____20100227_____

This is more data from the trigonometric parabola result. As you can see, I believe we did find a parabola that fits Prime numbers and other series. The only problem is that it requires precision beyond 16 decimal places. The parabola's vertex also opens along the x-axis. It would not be too difficult to convert it into the y-axis. But there is also the question of the usefulness of the LSsine and LScosine. If they prove true they will be very useful. (As I wrote to my friend Curtis (who has a Geometry Proof Book in the math section of the site).) :

The LSsine and LScosine may have a value if they prove to be true. The inverse of the sine does not equal the inverse of the cosine in trigonometry as you well know. It is the trig Pythagorean identity 1- sin^2 = cos^2. That is because a circle is curved uniformly. But it would be true with any curve. You see the LSsine uses a line; from the original length of the radius at one angle to the second length as if it had reached the same horizontal distance. So there is a line not a curve. That is why L * sine = 1/L * cosine . Or at least I hope so. And the reason this would be useful is that the sine and angle of L = the sine and angle of the original line.

Why did I work so hard on an impossible problem?

That is a good question. Perhaps only God can solve Prime numbers. My original idea was to fit a series along a logarithmic spiral, something that log spirals already do. Then there was the idea of solving a triangle only using one length. I know this is impossible. What I meant is that under certain conditions, you can find the triangle that fits your need knowing only 1 side.

I choose to do these problems without knowing if they are possible on the website. I find it helps me focus on what direction the problem is heading and to get feedback from those who read it. Unfortunately as my friend Curtis explained, it allows your problem to be picked apart without the proper proof to back it up.

So with that I will let you decide for yourself if this problem has produced anything useful.

```
Expand[(7 - x)^4]
```

$$2401 - 1372\,x + 294\,x^2 - 28\,x^3 + x^4$$

```
eqn = 49 (2401 - 1372 x + 294 x^2 - 28 x^3 + x^4) - (x^2) - (x^2 * (2401 - 1372 x + 294 x^2 - 28 x^3 + x^4))
```

$$-x^2 + 49\left(2401 - 1372\,x + 294\,x^2 - 28\,x^3 + x^4\right) - x^2\left(2401 - 1372\,x + 294\,x^2 - 28\,x^3 + x^4\right)$$

```
Expand[eqn]
```

$$117\,649 - 67\,228\,x + 12\,004\,x^2 - 245\,x^4 + 28\,x^5 - x^6$$

```
p = 117 649 - 67 228 x + 12 004 x^2 - 245 x^4 + 28 x^5 - x^6
```

$$117\,649 - 67\,228\,x + 12\,004\,x^2 - 245\,x^4 + 28\,x^5 - x^6$$

```
NSolve[p, x]
```

```
{{x → -6.99991}, {x → 5.78761}, {x → 6.54432 - 1.1812 i},
 {x → 6.54432 + 1.1812 i}, {x → 8.06183 - 0.820717 i}, {x → 8.06183 + 0.820717 i}}
```

```
√(49 - 5.787611359980842` ^2)
```

```
3.93746
```

(Debug) In[1]:=

```
Expand[(3539 - x)^4]
```

(Debug) Out[1]=

$$156\,863\,626\,279\,441 - 177\,297\,119\,276\,x + 75\,147\,126\,x^2 - 14\,156\,x^3 + x^4$$

(Debug) In[13]:=

```
eqn = 3539^2 (156 863 626 279 441 - 177 297 119 276 x + 75 147 126 x^2 - 14 156 x^3 + x^4) -
   (x^2) - (x^2 * (156 863 626 279 441 - 177 297 119 276 x + 75 147 126 x^2 - 14 156 x^3 + x^4))
```

(Debug) Out[13]=

$$-x^2 + 12\,524\,521\,(156\,863\,626\,279\,441 - 177\,297\,119\,276\,x + 75\,147\,126\,x^2 - 14\,156\,x^3 + x^4) - x^2\,(156\,863\,626\,279\,441 - 177\,297\,119\,276\,x + 75\,147\,126\,x^2 - 14\,156\,x^3 + x^4)$$

(Debug) In[14]:=

```
Expand[eqn]
```

(Debug) Out[14]=

$$1\,964\,641\,781\,473\,010\,672\,761 - 2\,220\,561\,493\,611\,766\,796\,x + 784\,318\,131\,397\,204\,x^2 - 62\,622\,605\,x^4 + 14\,156\,x^5 - x^6$$

(Debug) In[15]:=

```
p = 1 964 641 781 473 010 672 761 -
   2 220 561 493 611 766 796 x + 784 318 131 397 204 x^2 - 62 622 605 x^4 + 14 156 x^5 - x^6
```

(Debug) Out[15]=

$$1\,964\,641\,781\,473\,010\,672\,761 - 2\,220\,561\,493\,611\,766\,796\,x + 784\,318\,131\,397\,204\,x^2 - 62\,622\,605\,x^4 + 14\,156\,x^5 - x^6$$

(Debug) In[16]:=

```
NSolve[p, x]
```

(Debug) Out[16]=

$$\{\{x \to -3539.\}, \{x \to 3539.\}, \{x \to 3539.\}, \{x \to 3539.\}, \{x \to 3539.\}, \{x \to 3539.\}\}$$

```
Expand[(5 - x)^4]
625 - 500 x + 150 x^2 - 20 x^3 + x^4
25 * (625 - 500 x + 150 x^2 - 20 x^3 + x^4)
25 (625 - 500 x + 150 x^2 - 20 x^3 + x^4)
eqn = 25 (625 - 500 x + 150 x^2 - 20 x^3 + x^4) - (x^2) - (x^2 * ((625 - 500 x + 150 x^2 - 20 x^3 + x^4)))
-x^2 + 25 (625 - 500 x + 150 x^2 - 20 x^3 + x^4) - x^2 (625 - 500 x + 150 x^2 - 20 x^3 + x^4)
Expand[-x^2 + 25 (625 - 500 x + 150 x^2 - 20 x^3 + x^4) - x^2 (625 - 500 x + 150 x^2 - 20 x^3 + x^4)]
15 625 - 12 500 x + 3124 x^2 - 125 x^4 + 20 x^5 - x^6
p = 15 625 - 12 500 x + 3124 x^2 - 125 x^4 + 20 x^5 - x^6
NSolve[p, x]
```

$$625 - 500\,x + 150\,x^2 - 20\,x^3 + x^4$$

$$625 - 500\,x + 150\,x^2 - 20\,x^3 + x^4$$

$$25\,(625 - 500\,x + 150\,x^2 - 20\,x^3 + x^4)$$

$$25\,(625 - 500\,x + 150\,x^2 - 20\,x^3 + x^4)$$

$$-x^2 + 25\,(625 - 500\,x + 150\,x^2 - 20\,x^3 + x^4) - x^2\,(625 - 500\,x + 150\,x^2 - 20\,x^3 + x^4)$$

$$-x^2 + 25\,(625 - 500\,x + 150\,x^2 - 20\,x^3 + x^4) - x^2\,(625 - 500\,x + 150\,x^2 - 20\,x^3 + x^4)$$

$$15\,625 - 12\,500\,x + 3124\,x^2 - 125\,x^4 + 20\,x^5 - x^6$$

$$15\,625 - 12\,500\,x + 3124\,x^2 - 125\,x^4 + 20\,x^5 - x^6$$

$$15\,625 - 12\,500\,x + 3124\,x^2 - 125\,x^4 + 20\,x^5 - x^6$$

$$\{\{x \to -4.99975\}, \{x \to 3.88794\}, \{x \to 4.55644 - 1.09288\,i\},\ \{x \to 4.55644 + 1.09288\,i\}, \{x \to 5.99946 - 0.785566\,i\}, \{x \to 5.99946 + 0.785566\,i\}\}$$

```
(5^2) - (3.88794^2)
```

$$9.88392$$

```
Sq Sqrt[9.8839225564`]
```

$$3.14387\ \text{Sq}$$

```
Expand[(3 - x)^4]
81 - 108 x + 54 x^2 - 12 x^3 + x^4
Expand[(-x^2) + (3^2) * (81 - 108 x + 54 x^2 - 12 x^3 + x^4) - ((x^2) * (81 - 108 x + 54 x^2 - 12 x^3 + x^4))]
81 - 108 x + 54 x^2 - 12 x^3 + x^4
81 - 108 x + 54 x^2 - 12 x^3 + x^4
729 - 972 x + 404 x^2 - 45 x^4 + 12 x^5 - x^6
p = 729 - 972 x + 404 x^2 - 45 x^4 + 12 x^5 - x^6
729 - 972 x + 404 x^2 - 45 x^4 + 12 x^5 - x^6
NSolve[p, x]
{{x → -2.998842369327333`}, {x → 2.037894176909087`},
 {x → 2.564698976419745` - 0.9649808181744568` i},
 {x → 2.564698976419745` + 0.9649808181744568` i},
 {x → 3.9157751197893695` - 0.743519848518994` i},
 {x → 3.9157751197893695` + 0.743519848518994` i}}


√(9 - 2.03789^2)
2.2015913217261738`
```