Comparison of Program Output to `<math.h>` Output

My arcSin(x), arcCos(x), arcTan(x), and Log(x) functions are somewhat accurate, but not sufficiently accurate.

My arcSin(x) and arcCos(x) functions are most accurate around x = -1, x = 0, and x = 1, and are accurate to at least 10e-10 at those values.

My arcSin(x) and arcCos(x) functions are least accurate around x = -3/4 and x = 3/4, and are only accurate to 10e-4 at those values.

My arcTan(x) function is only accurate to 10e-4 at x = 1, and increases in accuracy until x = 10 when it is accurate to at least 10e-4

My Log(x) function is completely inaccurate and always returns 42

x	arcSin	Library	Difference
-1.0000	-1.57079633	-1.57079633	0.0000000000
-0.9000	-1.11976994	-1.11976951	-0.0000004205
-0.8000	-0.92732727	-0.92729522	-0.0000320490

x	arcCos	Library	Difference
-1.0000	3.14159265	3.14159265	-0.0000000000
-0.9000	2.69056626	2.69056584	0.0000004205
-0.8000	2.49812359	2.49809154	0.0000320490

x	arcTan	Library	Difference
1.0000	0.78572276	0.78539816	0.0003245921
1.1000	0.83314018	0.83298127	0.0001589179
1.2000	0.87613710	0.87605805	0.0000790505
1.3000	0.91514074	0.91510070	0.0000400364
1.4000	0.95056751	0.95054684	0.0000206718

x	Log	Library	Difference
1.0000	42.00000000	0.00000000	42.0000000000
1.1000	42.00000000	0.09531018	41.9046898202
1.2000	42.00000000	0.18232156	41.8176784432

Explanation

I would have liked to improve my functions, but I ran out of time. As a result, in some cases, my functions are only accurate to 10e-4.

My arcSin(x) functions uses the first 6 terms of the McLauren series for $\sin^{-1}(x)$ for -3/4 ≤ x ≤ 3/4 and it uses a trig identity elsewhere in the domain.

$$\left[x + \frac{x^3}{6} + \frac{3x^5}{40} + \frac{5x^7}{112} + \frac{35x^9}{1152} + \frac{63x^{11}}{2816}\right]\left\{-\frac{3}{4} \le x \le \frac{3}{4}\right\}$$

$$k = \sqrt{1-x^2}$$

$$\frac{\pi}{2} - \left[k + \frac{k^3}{6} + \frac{3k^5}{40} + \frac{5k^7}{112} + \frac{35k^9}{1152} + \frac{63k^{11}}{2816}\right]\left\{\frac{3}{4} < x \le 1\right\}$$

$$\left[k + \frac{k^3}{6} + \frac{3k^5}{40} + \frac{5k^7}{112} + \frac{35k^9}{1152} + \frac{63k^{11}}{2816}\right] - \frac{\pi}{2}\left\{-1 \le x < -\frac{3}{4}\right\}$$

$$x = 0.75$$

−10   10

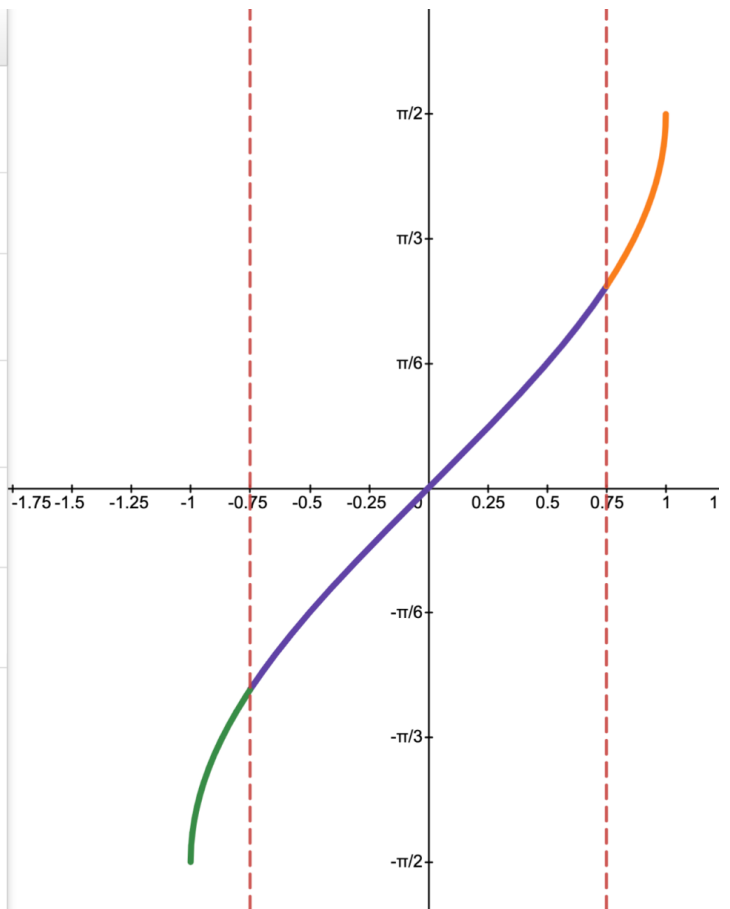$$x = -0.75$$

−10   10

arcCos(x) makes use of arcSin(x) with a trig identity

arcTan(x) makes use of arcCos(x) with a trig identity

Log(x) does not work properly because I ran out of time. It simply returns 42.