



**Strategies for Studying, Learning, and Researching**  
**By David Alderoty © 2014**

**Chapter 4) Using Questions as Search Phrases, and Search Phrases for Mathematical Calculations**  
**1319 Words**

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**Review of Definitions from Previous Chapters**

Note you can skip over this section, if you are familiar with the material presented in the following two subheadings. You can skim read the material, to be certain that you are familiar with it.

**Review: What Are Search Phrases?**

As the term is used in this text, search phrases are the words that are used with a search engine to find information on the Internet. A good example of a search phrase is [Supermarkets near New York,](#)

[NY 10019](#). You can left click on the blue words to see the search page from Bing, which indicated 109,000,000 results.

### **Review: What Are Search Operators?**

Search operators are symbols or words used to increase the precision of a search phrase. A few examples are the capitalized words **OR**, **AND**, the asterisk (\*) and quotation marks (""). To illustrate the utility of search operators, I place quotation marks on the search phrase that was presented in the preceding paragraph, which will **reduce the number of irrelevant results**.

[Supermarkets near "New York, NY 10019"](#) With the quotation marks Bing indicated 73,400 results, without the quotation marks there were 109,000,000 results.

### **Using Questions as Search Phrases**

#### **How Can Questions Be Used As Search Phrases?**

Questions can be inserted into the search box of any search engine, similar to conventional search phrases, and they sometimes provide excellent results. I am calling this technique **search phrase questions**. One of the advantages with this technique is you may not have to search through a large number of results. If a search engine recognizes a specific question, you might see your answer directly on the upper portion of the search page. However, this will not always happen with all questions or with all search engines, but it frequently happens with Google and Bing. These

search engines often include photographs with the answers. See the examples listed below.

**NOTE: To see the search results, left click on the blue underlined words. If a link fails, enter the search phrase question into the indicated search engine, which would be either Google or Bing.**

Search phrase questions, with [www.Google.com](http://www.Google.com)

[Who invented the World Wide Web?](#)

[What year was Sigmund Freud born?](#)

[Who was the first president of the United States?](#)

Search phrase questions, with [www.Bing.com](http://www.Bing.com)

[Who invented the World Wide Web?](#)

[What year was Sigmund Freud born?](#)

[Who was the first president of the United States?](#)

### **The Practical Use of Search Phrase Questions**

If a question does not provide the result you want, try rephrasing it. If it still does not produce the results you want, try converting it into a regular search phrase. Questions usually work better as search phrases, when they are short, and when they are frequently asked.

It is sometimes a good idea to start out with a series of questions about a topic, which you can optionally convert to conventional search phrases. This is a good strategy, when you

have many questions in relation to information you need, a problem, or a goal.

### **Search Operators, with Search Phrase Questions**

When questions are used as search phrases, it is sometimes better to use a search operator with the question. This can involve initially testing the question without any search operators. If you get an excess amount of irrelevant results, then modify your question with search operators. This is illustrated in the following paragraph with an example.

Quotation marks are especially useful, when a question is relatively long, or unusual, such as the following: [What is the best technique for learning mathematics](#) Without the quotation marks this Google search page indicated 45,800,000 results. When the search phrase was modified with quotation marks, as indicated below, there were only 2 search results. ["What is the best technique" for "learning mathematics"](#)

The above search phrase can be modified to increase the number of relevant results, by leaving the quotation marks, and replacing the word technique with an \*. In this case the asterisk (\*) represents **technique**, **method**, **methodology**, **tips**, **strategies**, and many other words This modification provided a Google search page that indicated 754,000 results: ["What is the best \\*" for "learning mathematics"](#)

### **Search Phrases for Mathematical Computation**

## **Using Search Phrase Questions for Mathematics**

Questions are especially useful for subjects that involve mathematics. It is even possible to enter certain math problems into a search engine and obtain calculated solutions. However, when a search engine is used in this way the result should be double-checked with multiple searches, and/or a calculator. This is because search engines can misinterpret the precise meaning of a question or search phrase. However, this problem is reduced with Google, because it usually displays an online calculator with the mathematical results.

I carried out some experiments using mathematics questions and four search engines, which are as follows:

[www.Search.Ask.com](http://www.Search.Ask.com), [www.Bing.com](http://www.Bing.com), [www.Google.com](http://www.Google.com), and [www.Wolframalpha.com](http://www.Wolframalpha.com) Wolframalpha is **not** a conventional search engine, and it is specifically designed for mathematics. See the following results.

**NOTE: To see the search results, left click on the word Answer. If a link fails, enter the search phrase question into the indicated search engine.**

### **How much is $345+234+1098$**

[www.Search.Ask.com](http://www.Search.Ask.com), [Answer:  \$345+234+1098 = 1,677\$](#)

(Note: scroll down about one half of the webpage to see the answer from [www.Search.Ask.com](http://www.Search.Ask.com))

[www.Bing.com](http://www.Bing.com), [Answer:  \$345 + 234 + 1098 = 1677\$](#)

[www.Google.com](http://www.Google.com), [Answer: 1677](#)

[www.Wolframalpha.com](http://www.Wolframalpha.com), [Answer: 1677](#)

**How much is 94 multiplied by 64**

[www.Search.Ask.com](http://www.Search.Ask.com), [Answer:  \$94 \* 64 = 6,016\$](#)

(Note: scroll down about one half of the webpage to see the answer from [www.Search.Ask.com](http://www.Search.Ask.com))

[www.Bing.com](http://www.Bing.com), [Answer:  \$94 \* 64 = 6016\$](#)

[www.Google.com](http://www.Google.com), [Answer: 6016](#)

[www.Wolframalpha.com](http://www.Wolframalpha.com), [Answer: 6016](#)

**(Trigonometry) How much is  $1 + \sin 30$  degrees**

[www.Search.Ask.com](http://www.Search.Ask.com), [NO Answer](#)

[www.Bing.com](http://www.Bing.com), [Answer:  \$1 + \sin\(30^\circ\) = 1.5\$](#)

[www.Google.com](http://www.Google.com), [Answer: 1.5](#)

[www.Wolframalpha.com](http://www.Wolframalpha.com), [Answer: 1.5](#)

**(Complex numbers) How much is  $8 + (2i)^2$**

[www.Search.Ask.com](http://www.Search.Ask.com), [NO Answer](#)

[www.Bing.com](http://www.Bing.com), [NO Answer](#)

[www.Google.com](http://www.Google.com), [Answer: 4](#)

[www.Wolframalpha.com](http://www.Wolframalpha.com), [Answer 4](#)

**If  $3X=36$  How much is X**

[www.Search.Ask.com](http://www.Search.Ask.com), [NO Answer:](#)

[www.Bing.com](http://www.Bing.com), NO Answer

[www.Google.com](http://www.Google.com), NO Answer

[www.Wolframalpha.com](http://www.Wolframalpha.com), Answer: X=12

### **Questions, or Conventional Search Phrases**

In actual practice, it is sometimes better to enter mathematical expressions in a non-question format, such as  **$3*X=36$** . This is because the search engine has to interpret the meaning of words, as well as the mathematics. Wolframalpha is designed to interpret different formats including words. I repeated the above in a non-question format, and the results are as follows:

**$3*X=36$**

[www.Search.Ask.com](http://www.Search.Ask.com), NO Answer

[www.Bing.com](http://www.Bing.com), Answer: solve  $3x = 36 \Rightarrow x=12$

[www.Google.com](http://www.Google.com), NO Answer

[www.Wolframalpha.com](http://www.Wolframalpha.com), Answer: X=12

### **Comparing the Calculation Mechanisms in Two Search Engines, using Hyperbolic Calculus Integrals**

The following experiment was performed with complex mathematics to test the calculation mechanisms of two search engines, which are Wolframalpha (at [www.Wolframalpha.com](http://www.Wolframalpha.com)) and Symbolab (at [www.Symbolab.com](http://www.Symbolab.com)). The mathematics involved three hyperbolic calculus integrals, which are displayed below.

$$\int_{0.456}^{1.945} \sinh(x)^2 dx = 5.10586, \quad \int_{0.456}^{1.945} \cosh(x) dx = 2.95335, \quad \int_{0.456}^{1.945} \cosh(x)^2 dx = 6.59486$$

The calculated results for these integrals were obtained from a dedicated online calculation device, I created a couple of years ago. (See [www.TechForText.com/Sinh-Cosh](http://www.TechForText.com/Sinh-Cosh)) I set this device to calculate to five decimal places. Then I double checked the calculations with Mathcad 15, which indicated the same numbers as the online device.

Both Wolframalpha and Symbolab perform the calculations correctly. However, Symbolab displayed the calculated results in terms of two or three fractions, involving hyperbolic functions and numbers. I entered the fractions into a Mathcad document, and the calculated numbers were identical to Wolframalpha. The results are presented below. If you want to see the actual calculated results from Wolframalpha and Symbolab, left click on the link above each integral.

[www.Wolframalpha.com](http://www.Wolframalpha.com)

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[Left click to see the actual calculation](#)

$$\int_{0.456}^{1.945} \sinh(x)^2 dx = 5.10586$$

---

[Left click to see the actual calculation](#)

$$\int_{0.456}^{1.945} \cosh(x) dx = 2.95335$$

---

[Left click to see the actual calculation](#)



$$\int_{0.456}^{1.945} \cosh(x)^2 dx = 6.59486$$


---

[www.Symbolab.com](http://www.Symbolab.com)

---

[Left click to see the actual calculation](#)

$$\int_{0.456}^{1.945} \sinh(x)^2 dx =$$

$$\frac{-1489}{2000} - \frac{\sinh\left(\frac{114}{125}\right)}{4} + \frac{\sinh\left(\frac{389}{100}\right)}{4} = 5.10586$$

The sum of the fractions calculated with Mathcad

[Left click to see the actual calculation](#)

$$\int_{0.456}^{1.945} \cosh(x) dx =$$

$$\sinh\left(\frac{389}{200}\right) - \sinh\left(\frac{57}{125}\right) = 2.95335$$

The sum of the fractions calculated with Mathcad

[Left click to see the actual calculation](#)

$$\int_{0.456}^{1.945} \cosh(x)^2 dx =$$

$$\frac{1489}{2000} - \frac{\sinh\left(\frac{114}{125}\right)}{4} + \frac{\sinh\left(\frac{389}{100}\right)}{4} = 6.59486$$

The sum of the fractions calculated with Mathcad

**From Other Authors: Additional and Supporting Information, and Alternative Perspectives, for Chapter 4**

## Instructions

If you want more information, alternative perspectives or explanations, see the following websites and videos from other authors. To access this material left click on the blue links, or the URLs presented below.

If a link fails, enter the indicated **search phrase** or the **\*words that are displayed from the website**, into the search engine presented on the left of each entry. \*Note the words from the website are indicated with **Words on website:** If you examine the following entries all of the above will be clarified.

### Webpages from other Authors, to Support and Supplement The Concepts and other Material in Chapter 4

[www.Google.com](http://www.google.com) Search phrase: [How to find difficult information on the internet](#) This is a Google search page, which indicates 441,000,000 results.

[www.Google.com](http://www.google.com) Words on website: [Internet Research Tips Finding Reliable Internet Sources By Grace Fleming](#) URL is: <http://goo.gl/emwAfx>

[www.Google.com](http://www.google.com) Words on website: [Internet search: What makes it simple, difficult or impossible? Daniel M. Russell](#) URL is: <http://goo.gl/Od9Nf6>

[www.Google.com](http://www.google.com) Words on website: [How Easy/Difficult to Find Information about Individual Health Insurance from the Internet? SitesKui Chun Su](#), URL is: <http://goo.gl/Ras6ny>

[www.Google.com](http://www.google.com) Words on website: [Why it is getting more difficult to find what you want online](#) By Barry G Wood Posted Jul 27, 2012 in [Technology](#) URL is: <http://digitaljournal.com/blog/17701>

[www.Google.com](http://www.google.com) Search phrase: [deep web search](#) This is a Google search page, which indicates 647,000,000 results.

[www.Google.com](http://www.google.com) Words on website: [How to search the Deep Web](#), By Patrick Howell O'Neill on October 14, 2013 URL is: <http://goo.gl/vz8mrX>

[www.Google.com](http://www.google.com) Words on website: [Five Search Engines You Can Use to Search the Invisible Web](#) By Wendy Boswell URL is: <http://goo.gl/CkW089>

[www.Google.com](http://www.google.com) Search phrase: [Mathematical search engines](#) This is a Google search page, which indicates 2,760,000 results.

[www.Google.com](http://www.google.com) Words on website: [The Ultimate Guide to the Invisible Web](#) Staff Writers – November 11, 2013 URL is: <http://goo.gl/eMrOv9>

[www.Google.com](http://www.google.com) Words on website: [Home » University » Mathematics](#) URL is: <http://goo.gl/epNM6n>

[www.Google.com](http://www.google.com) Words on website: [SEARCH FOR MATHEMATICS TOPICS](#) URL is: <http://goo.gl/2qvy5g>

[www.Google.com](http://www.google.com) Words on website: [MathWebSearch: Searching Math on the Web](#) URL is: <http://search.mathweb.org>

### **Videos from other Authors, to Support and Supplement The Concepts and other Material in Chapter 4**

When you left click on a **link** for a video, a webpage will open, and the video will start automatically in most cases. The webpage that

opens with the video will usually have 10 or more **RELEVANT** videos. If the video does not start automatically, and the webpage opens, left click on the link provided by the author of the video. This link is usually in the center of the screen.

[www.Video.Google.com](http://www.Video.Google.com) **Search phrase:** [How to find difficult information on the internet](#) [This is a Google video search page](#), which indicates **47,000,000 results**.

[www.Video.Google.com](http://www.Video.Google.com) Words on website: [Markham Nolan: How to separate fact and fiction online](#), URL is: <http://goo.gl/N5zjI>

[www.Video.Google.com](http://www.Video.Google.com) **Search phrase:** [Mathematical search engines, and resources on the Web](#) [This is a Google video search page](#), which indicates **495,000 results**.

[www.Video.Google.com](http://www.Video.Google.com) Words on website: [Stephen Wolfram: The Background and Vision of Mathematica](#), URL is: <http://youtu.be/56ISaies6Ws>

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