

# Lab 1: Ciphers and Fundamentals

## A Introduction

No	Description	Result
1	Go to: <b>http://asecuritysite.com/Challenges</b> and click on the “Start Challenge” button, and see if you can score over 30 points.	Your score: <b>30</b>
2	Using: http://asecuritysite.com/Encryption/testprime Test for the following prime numbers:	91: [Yes] [No] 421: [Yes] [No] 1449: [Yes] [No]
3	Using: http://asecuritysite.com/Encryption/gcd Determine the GCD for the following:	88, 46: <b>2</b> 105, 35: <b>35</b>
4	Using: http://asecuritysite.com/coding/ascii Determine the Base 64 and Hex values for the following strings:	Hello: <b>HEX: 48656C6C6F</b> <b>Base-64: SGVsbG8=</b>  hello: <b>HEX: 68656C6C6F</b> <b>Base-64: aGVsbG8=</b>  HELLO: <b>HEX: 48454C4C4F</b> <b>Base-64: SEVMTE8=</b>
5	Using: http://asecuritysite.com/coding/ascii Determine the following ASCII strings for these encoded formats:	bGxveWRz <b>lloyds</b>  6E6170696572 <b>napier</b>  01000001 01101110 01101011 01101100 01100101 00110001 00110010 00110011 <b>Ankle123</b>
6	Using: http://asecuritysite.com/Coding/exor Determine the EX-OR of “hello” ex-ORed with the letter ‘t’	Hex: <b>1C1118181B</b>  Base 64: <b>HBEYGBs=</b>  Is the result printable in ASCII? [Yes][No]
7	What is the result of 53,431 mod 453?	<b>430</b>

<b>8</b>	Generate a random number from:  <a href="http://asecuritysite.com/Encryption/js01">http://asecuritysite.com/Encryption/js01</a>	How many hex characters does the result have? <b>60</b>
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## B Frequency Analysis

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Now see if you can crack the **five minute cracking challenge** for:

<http://asecuritysite.com/challenges/scramb>

## C Character mapping

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Complete the following table for the characters:

Char	Decimal	Binary	Hex	Oct	HTML
(Space)	<b>032</b>	<b>00100000</b>	<b>20</b>	<b>040</b>	<b>&amp;#32;</b>
a	<b>097</b>	<b>01100001</b>	<b>61</b>	<b>141</b>	<b>&amp;#97;</b>
}	<b>125</b>	<b>01111101</b>	<b>7D</b>	<b>175</b>	<b>&amp;#125;</b>
Ã	<b>195</b>	<b>11000011</b>	<b>C3</b>	<b>303</b>	<b>&amp;#195;</b>
ÿ	<b>255</b>	<b>11111111</b>	<b>FF</b>	<b>377</b>	<b>&amp;#255;</b>

## D Test

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1. Crack some Caesar codes at: <http://asecuritysite.com/tests/tests?sortBy=caesar>
2. Determine some hex conversions at: <http://asecuritysite.com/tests/tests?sortBy=hex01>
3. Determine some Base64 conversions: <http://asecuritysite.com/tests/tests?sortBy=ascii01>
4. Now complete the test at: <http://asecuritysite.com/tests/tests?sortBy=crypto01>