

# Prime Numbers Answers

1. Colour in the square with the number 1 on this grid. 1 is not a prime number.
2. Colour in all multiples of 2 greater than 2.
3. Colour in all multiples of 3 greater than 3.
4. Colour in all multiples of 5 greater than 5.
5. Colour in all multiples of 7 greater than 7.
6. All numbers not coloured in are prime numbers.
7. Use *all* the two digit prime numbers to complete the grid below. The numbers are to be bounded by the heavy lines.

	4	3	5	3	
6	7	7	9	1	1
1	7	4	1	2	3
	1	9	8	9	
	7	3			

*This is one possible solution*

	2	3		5		7			
11		13				17		19	
		23						29	
31						37			
41		43				47			
		53						59	
61						67			
71		73						79	
		83						89	
						97			

8. List the next 20 prime numbers after 97 (use the internet or other resources).

101	103	107	109	113	127	131	137	139	149
151	157	163	167	173	179	181	191	193	197

9. In 1742, the German mathematician Christian Goldbach made the conjecture that every even number except 2 is the sum of two prime numbers.

*Examples:*  $4 = 2 + 2$      $6 = 3 + 3$      $14 = 11 + 3$      $64 = 59 + 5$

Show that this conjecture is correct for the following even numbers.

*There are many solutions - these are one of each*

Even Number	Two Prime Number Sum
14	$11 + 3$
20	$17 + 3$
38	$31 + 7$
50	$47 + 3$
68	$61 + 7$

Even Number	Two Prime Number Sum
74	$71 + 3$
98	$79 + 19$
100	$97 + 3$
108	$103 + 5$
128	$109 + 19$

Even Number	Two Prime Number Sum
148	$137 + 11$
158	$151 + 7$
190	$179 + 11$
200	$197 + 3$
366	$359 + 7$