

<p>Day 1 Subtracting squares</p>	<p>1. Copy the following and complete the next 6 lines.</p> $2^2 - 1^2 = 4 - 1 = 3 = 2 + 1$ $3^2 - 2^2 = 9 - 4 = 5 = 3 + 2$ $4^2 - 3^2 = 16 - 9 = 7 = 4 + 3$ $5^2 - 4^2 = 25 - 16 = 9 = 5 + 4$ <p>2. Without using a calculator find the value of:</p> <p>a) $21^2 - 20^2$ <input type="text"/> b) $37^2 - 36^2$ <input type="text"/></p> <p>c) $100^2 - 9^2$ <input type="text"/> d) $125^2 - 124^2$ <input type="text"/></p> <p>3. Investigate</p> <p>a) $3^2 - 1^2$ <input type="text"/> b) $4^2 - 1^2$ <input type="text"/> c) $5^2 - 1^2$ <input type="text"/></p> <p>d) $4^2 - 2^2$ <input type="text"/> e) $5^2 - 2^2$ <input type="text"/> f) $6^2 - 1^2$ <input type="text"/></p> <p>g) $5^2 - 3^2$ <input type="text"/> h) $6^2 - 3^2$ <input type="text"/> i) $7^2 - 3^2$ <input type="text"/></p> <p>What conclusions do you draw?</p>
<p>Day 2 Operation maths</p>	<ol style="list-style-type: none"> Using the numbers 2, 3, 4 and 5 form two 2-digit numbers, e.g. 35 and 42. Multiply the two numbers using a calculator: $35 \times 42 = 1470$ Arrange the four numbers in another way, e.g. 25 and 43. Again multiply the two numbers. How many different products can you make? What is the largest possible product? What is the smallest possible product? Investigate other sets of 4 numbers.

<p>Day 3 Prime time</p>	<p>This pattern always appears to give prime numbers.</p> <p>$1 \times 1 - 1 + 17 = 17$ which is a prime $2 \times 2 - 2 + 17 = 19$ which is a prime $3 \times 3 - 3 + 17 = 23$ which is a prime</p> <p>Continue this pattern. Will it always give prime numbers?</p>
<p>Day 4 In your prime</p>	<ol style="list-style-type: none"> Write the prime numbers from 5 to 61. Write the 6 times table from 1×6 to 10×6. Then subtract 1 and add 1 to each answer as follows: <p>$6 - 1 = 5$ $6 + 1 = 7$ $12 - 1 = 11$ $12 + 1 = 13$ $18 - 1 =$ <input type="text"/> $18 + 1 =$ <input type="text"/></p>
<p>Day 5 Mirror primes</p>	<p>13 and 31 are both prime numbers. If a number and its mirror number are both prime then it is called a mirror prime. 29 is a prime number, but 92 is not. Therefore 29 is not a mirror prime.</p> <ol style="list-style-type: none"> Which of the following are mirror primes? 11, 17, 19, 23. Find all the mirror primes up to 100. How many are there? What is the smallest 3-digit mirror prime? What is the biggest?