**True, false or sometimes true?**

1. To multiply by 10, add an extra 0.
2. An even number is divisible by 2.
3. Finding two fifths of a number is the same as dividing it by 5 then multiplying by 2.
4. Squaring a number gives a higher number.
5. You divide a number by 2 and then by 10. The answer is different if you divide it by 10 then by 2.
6. The total of two numbers is greater than their difference.
7. If the total of two numbers id odd, so is their difference.
8. A prime number is an odd number.
9. You double a number and add 10. The answer is different if you add 10 first and then double.
10. Adding two negative numbers gives a positive number.

**Finding a counter-example**

1. Which of the statements are false? If so, give a counterexample.
	1. The sum of two odd numbers is even.
	2. The sum of two even numbers is even.
	3. The product of two odd numbers is even.
	4. The product of two even numbers is even.
2. Jim says ‘Prime numbers are always odd’. Prove that Jim is wrong.
3. ‘The square root of a number is always smaller than the number itself.’ Is this correct? Give an example to support your claim.
4. Show that each statement is false.
	1. $3n+1$ is odd for all integers $n$.
	2. $2n$ is even for all values of $n$.
	3. $2^{n}\geq 1$ for all values of $n$.
	4. $2n^{2}+11$ is prime for all integers $n$.
5. Show that each statement below is false.
	1. If $k^{2}>0$ then $k>0$.
	2. If $k$ is even then $\frac{k}{2}$ is even.
	3. If $p$ is prime then $p+2$ is prime.
	4. If $a<1$ and $b<1$ then $ab<1$.