

## Nrich Challenge



### Always, sometimes, never

Look at the statements below. Sort the statements into the grid on this sheet. You have to be able to prove it so you can't just guess. You will need to test your decision and prove it to me. Also answer the key questions.

Are the following statements always true, sometimes true or never true?

The sum of three numbers is odd	If you add 1 to an odd number you get an even number
Multiples of 5 end in a 5	If you add two odd numbers you get an odd number
If you add a multiple of 10 to a multiple of 5 the answer is a multiple of 5	

What about these statements?

When you multiply two numbers you will always get a bigger number	If you add a number to 5 your answer will be bigger than 5
A square number has an even number of factors	The sum of three consecutive numbers is divisible by 3
Dividing a whole number by a half makes it twice as big	

### Always, Sometimes or Never? – Grid

Always True	Sometimes True	Never True

### Key questions

Can you think of an example when it isn't true?

How do you know that it is always true?

Is it possible to check all examples? Is there another way of knowing?