



## HOW OLD AM I?

It is my birthday and in 15 years' time, my age will be the square of my age 15 years ago! Can you work out how old I am?

Now I am thinking "Was there ever a time in my life when I had other special birthdays?" Could I have said: "In 3 years' time, my age will be the square of my age 3 years ago" or: "In 4 years' time, my age will be the square of my age 4 years ago" or: "In 5 years' time, my age will be the square of my age 5 years ago" or...?

Can you make any generalisations about which birthdays are special in this way? Can you prove your findings?

## HELP

1. What are you trying to find out? Let's use  $x$  for the unknown.
2. Can you write down an equation from the information given?
3. Can you solve your equation?
4. Check your solutions, are they both solutions to the problem?

## NEXT

**GENERALISATION:** A good problem solving technique is to try simple cases. Are there any other special birthdays?

Try the same problem with 1, 2, 3, 4, 5 ... in place of 15.

You will discover that the special birthdays are 3, 6, 10, 15, 21, 28, 36, 45, ....

Do you recognise this sequence of numbers? This is the sequence of triangle numbers. Why do you think the solutions to this problem belong to this special sequence?