## \*\*\*\*\* Mathematical Weekly \*\*\*\*\*

## Week 33

What can you do with 666 ?

First, something simple:

$$666 = 1+2+3+\dots+34+35+36$$
  

$$= 1+2+3+4+567+89$$
  

$$= 123+456+78+9$$
  

$$= 9+87+6+543+21$$
  

$$= 6+6+6+6^3+6^3+6^3$$
  

$$= 1^6-2^6+3^6$$
  

$$= \sqrt{(6\times6\times6)^2+(666-6\times6)^2}$$
  

$$= 2^2+3^2+5^2+7^2+11^2+13^2+17^2$$

where 2, 3, 5, 7, 11, 13, 17 are the first seven prime numbers.

Now, observe that

$$666^2 = 443556$$
  
 $666^3 = 295408296$ 

If you do some small tricks on the right-hand side, you obtain

$$(4^3 + 4^3 + 3^3 + 5^3 + 5^3 + 6^3) + (2 + 9 + 5 + 4 + 0 + 8 + 2 + 9 + 6) = 666$$

Moreover, you may be amazed by comparing

$$666 = 2 \times 3 \times 3 \times 37$$
  
6+6+6=2+3+3+3+7

Finally, if you have good programming skills and feel that the above is not surprising enough, check out the following:

Of course, you can find some more fun stuff about **666** elsewhere.

GRC 🕲