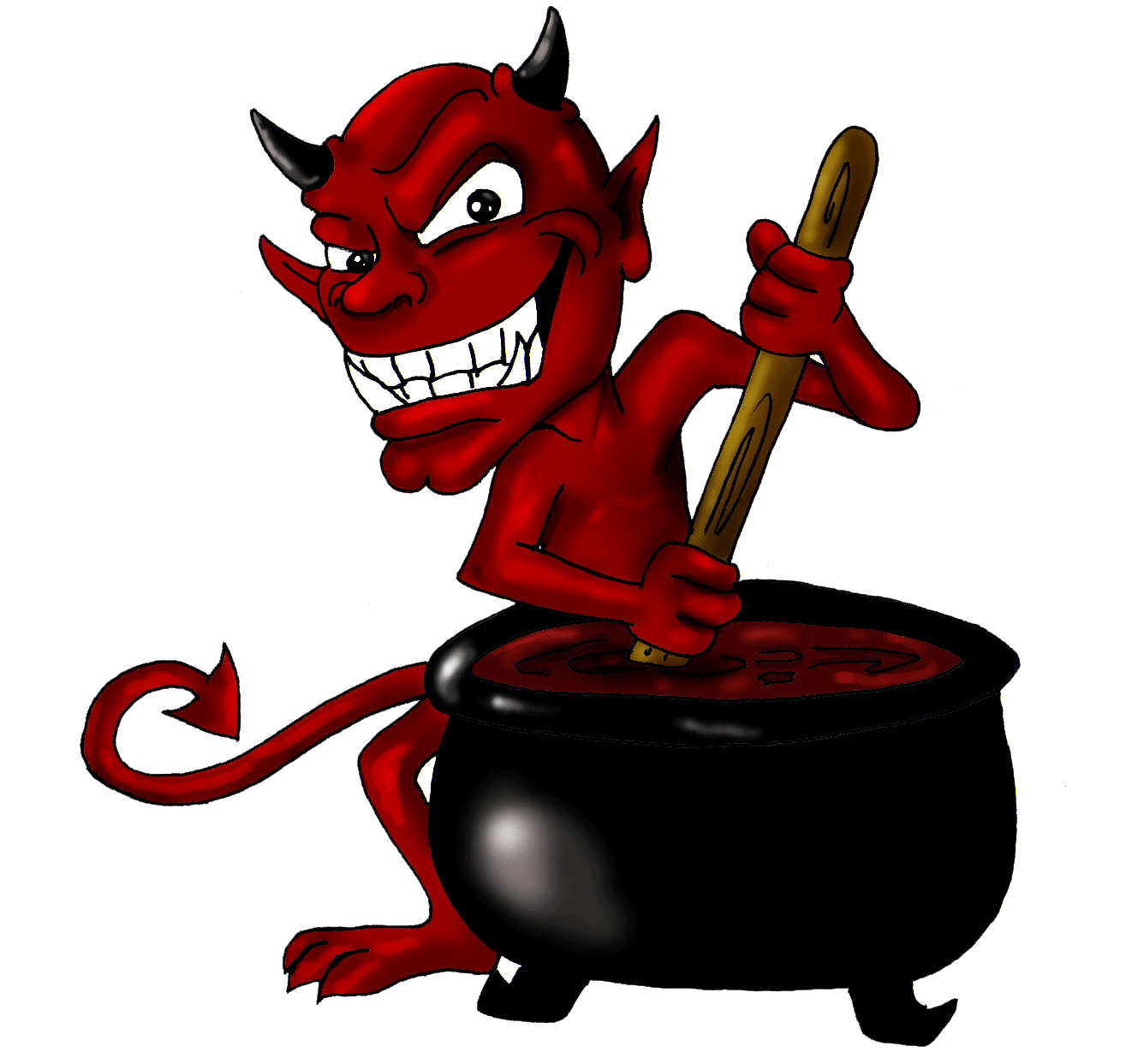
****

**666: 3 PERFECT NUMBERS OR**

**THE NUMBER OF THE BEAST?**

A number is said to be perfect when the sum of its divisors (that is all the numbers that divide into it exactly and are less than itself) equal the number. 6 can be divided by 1, 2 and 3. 1+2+3=6. The next perfect number is between 25 and 30. Can you work out what it is?

In the following table, cross out any numbers that can be divided by 2, **but do not cross out 2**. Then cross out any number that can be divided by 3, **but do not cross out 3**. Continue to cross out any numbers that can be divided by 4,5,6 and 7 **but do not cross out 5 & 7**.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | **2** | **3** | **4** | **5** | **6** |
| **7** | **8** | **9** | **10** | **11** | **12** |
| **13** | **14** | **15** | **16** | **17** | **18** |
| **19** | **20** | **21** | **22** | **23** | **24** |
| **25** | **26** | **27** | **28** | **29** | **30** |
| **31** | **32** | **33** | **34** | **35** | **36** |
| **37** | **38** | **39** | **40** | **41** | **42** |
| **43** | **44** | **45** | **46** | **47** | **48** |
| **49** | **50** | **51** | **52** | **53** | **54** |
| **55** | **56** | **57** | **58** | **59** | **60** |
| **61** | **62** | **63** | **64** | **65** | **66** |
| **67** | **68** | **69** | **70** | **71** | **72** |
| **73** | **74** | **75** | **76** | **77** | **78** |
| **79** | **80** | **81** | **82** | **83** | **84** |
| **85** | **86** | **87** | **88** | **89** | **90** |
| **91** | **92** | **93** | **94** | **95** | **96** |
| **97** | **98** | **99** | **100** |  |  |

Write down the numbers you have not crossed out in numerical order (from the smallest to the largest):

**These are the prime numbers under 100. How many are there of them?**

Do prime numbers have a relationship with the number 6, if so, what is it?

If you add up the squares of the first 7 prime numbers, what number do you get?

2² + 3²+5²+7²+11²+13²+17² =

Now try adding this: 1+2+3+4+5+6+7+8+9+10+11+12+13+14+15+16+17+18+19+20+21+22+23+24+25+26+27+28+29+30+31+32+33+34+35+36 =

Now add this: 1³+2³+3³+4³+5³+6³+5³+4³+3³+2³+1³ =

**This number is PALINDROMIC - it is the same if you read it forwards or backwards.**