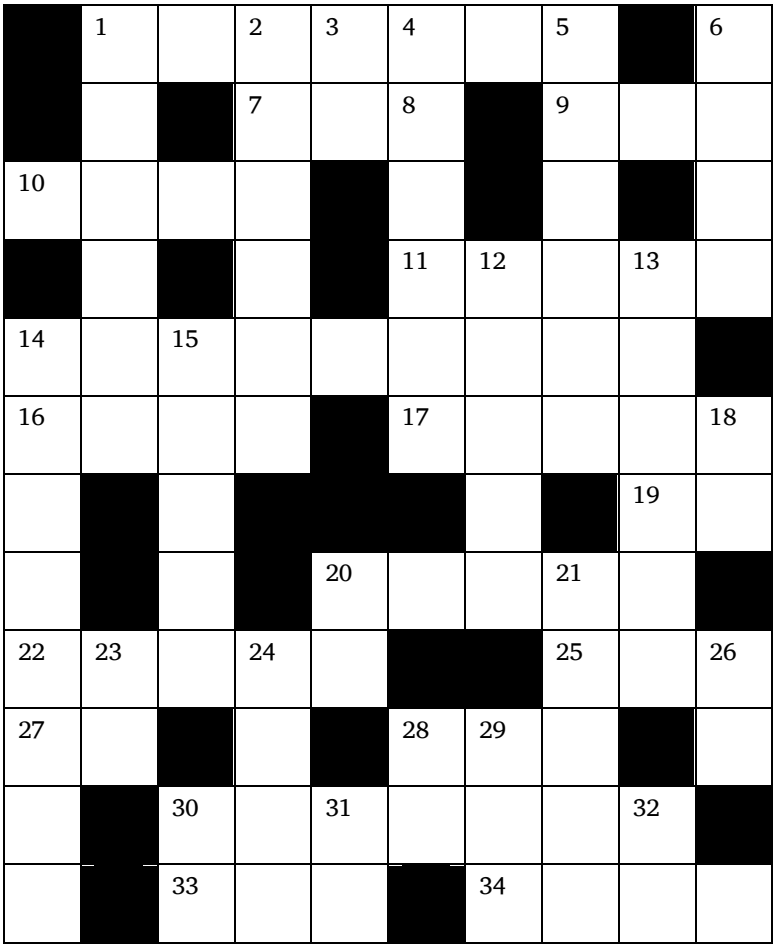
Playing With Primes



All across and down “words” are prime numbers. In addition, the numbers must satisfy the clues listed below:

Across:

1 Last digit is one less than twice the sum of the other digits

7 Middle digit is one more than the sum of the other digits

9 Last two digits are the same

10 First two digits are 20 down minus three; last two digits are the same

11 Last digit is sum of first and third digits

14 First 6 digits are in descending consecutive order

20 Second digit is sum of the last three digits

22 20 across with second digit decremented by one and last digit incremented by two

25 Reverse last two digits of 4 down, multiply 18 down, then add five

27 Same as 31 down

28 Last three digits of 6 down

30 Second digit is sum of first and third digits

16 First and third digits are the same

17 The product of the first two digits equals the product of the last two digits

19 Sum of digits of 30 across plus sum of digits of 2 down

33 First digit is second digit divided by last digit

34 Last digit is sum of the others

Down:

1 First and fourth digits are the same; second and third digits are the same; last two digits are same as the last two digits of 29 down.

2 Third digit is sum of fourth and fifth digits

3 19 across reversed

4 First three digits are same as first three digits of 2 down

5 First two digits are reversed 26 down; third digit is sum of last three digits

6 Last digit is one more than the sum of the other digits

12 First two digits are 28 down; last three digits are 29 down plus ten

13 First and fourth digits are the same; second and last digits are the same

14 First seven digits are in descending consecutive order

15 Second digit is sum of the last two digits

18 Sum of the digits of 15 down

20 Reverse of four more than 18 down

21 Third digit is fourth digit minus fifth digit

23 18 down plus thirty

24 First two digits are three times first two digits of 1 across

26 First two digits of 5 down, reversed

28 Sum of the digits of 1 across

29 7 across plus ten

30 Two more than 31 down

31 Last two digits of 4 down

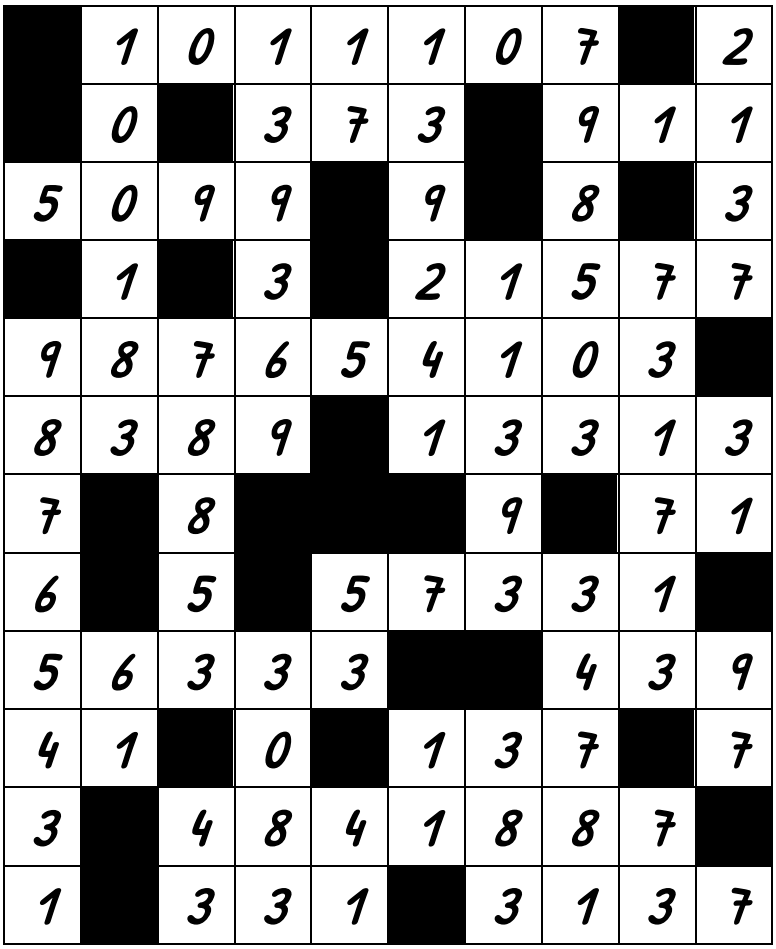
32 Last two digits of 6 down, reversed

Bonus Question:

The answer for 14 across has a unique property. What is it?

Solution is on next page

Solution:



Bonus Question:

It is the largest prime number in base ten with no repeated digits.