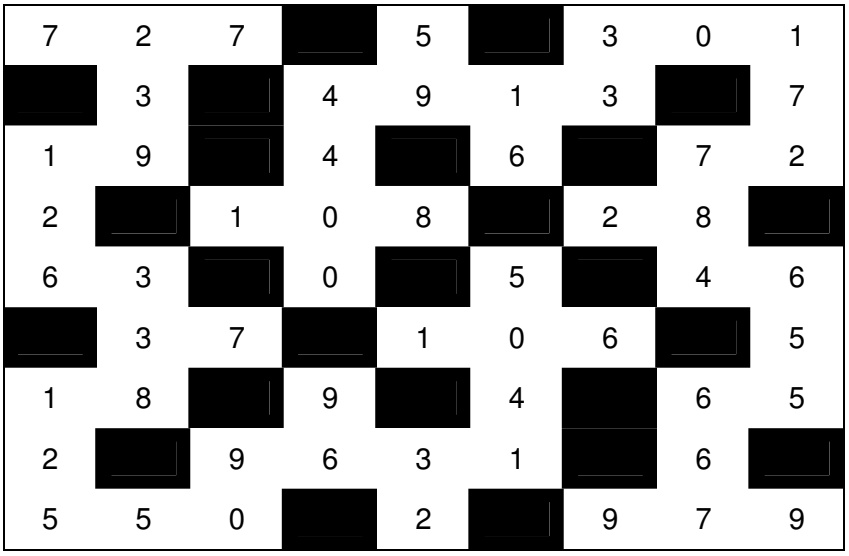
Solution



- 1A: 7997 = 11*727 => 727.
- 2D: 7887 = 3*11*239 => 239.
- 6A: 1000<17^n<9999 => 4913.
- 14D: 1000<71^n<9999 => 5041.
- 20D: Only possible digits are {6,9} or {7,8}. Division by 4 => 96.
- 21D LCM(23, 29) = 23*29 = 667.
- 9D: A three digit square such that its middle digit is the unit's digit of its square root. => 9D = 100, 200, 784 or 900. But three of them imply that 15A starts with 0. => 9D = 784
- 10A: 3|10A and 2*10A is a cube => 2*10A = 216 or 1728 => 10A = 108 or 864. By 5D, 10A<180 so 10A = 108.
- 11A = 28.
- 8A: 8A<20% of 20D => 8A<20 => 8A = 19.
- 4D = "x3" => palindromic => 33.
- 9A = "7x" so by trial and error it is 72.
- 15A = "4x" so by trial and error it is 46.
- 25A = "x7x" and palindromic = mod(2x-7,11) = 0 => 2x = 18 =>x = 9 => 979.
- 4A = "3xy" where x+y = 1 and 7|3xy => "xy" = "01" so 4A = 301.
- 16D = "6xy" = 61*n+16 => 16D = 655.
- 21A = 65 (filled in).
- 5D: 10A = 108 => 5 sides. 45 sided polygon => 5D = 172 deg.

- 21A: 7D = "1x", 21A = 65 so by trial and error, 7D = 16 and 12A = 63.
- 8D = 2*12A = 126.
- 3D = ½*15A + 2/7*8D = ½*46 + 2/7*126 = 23+36 = 59.
- 18A: by 17A, 18A<180. Therefore middle digit = 0 => 18A = "10x" and then 4 factors => 106.
- 17A = (180-18A)/2 = 74/2 = 37.

- 22A: By 23D, it is a 4-digit multiple of 301 which ends in 2 => 3612, 6622 and 9632. So 3611, 6621 or 9631. Digits are in descending order => 9631.
- 23D = (22A+1)/4A + 1 = 9632/301 = 32.

- 19A: 8D = 126 so 2-digit factors are 14, 18, 21, 42 and 63. Also, 19D is a cube so first digit of 19D = 1, 2, 3, 5 or 7. Together, these imply that 19A = 14, 18 or 21. However, 19A = 21 => 13D = 331 which is not > 4A*1.1 so first digit of 19A, 19D is 1. Then, from 22A, 9 and 6 are factors of 19A => 19A = 18.
- 13D = 338 (filled in).
- 19D: 3-digit cube, starting with 1 = 125.
- 22D = 72% of 125 = 90.
- 6D = "4x0y" = multiple of 11 so 6D in {4004, 4103, 4202, 4301, 4400, 4609, 4708, 4807, 4906. Also 24A = "5z0" divides 6D. Together, these imply that 6D = 4400.
- and 24A = 550.