

The New Year Challenge – Dr. Hari Kishan

Your goal is to form expressions for all the positive integers from 1 to 100 using **in order** the four digits of the New Year and the operations addition, subtraction, multiplication, division, square root, exponentiation, factorial, and the greatest integer function. Parentheses may also be used.

$1 = (2 + 0!) \times 2 - 5$ _____	$24 = -2 + 0! + 25$ _____
$2 = -(2 + 0!) + 5$ _____	$25 = (2 + 0! + 2) \times 5$ _____
$3 = 2 \times 0 - 2 + 5$ _____	$26 = 2 - 0! + 25$ _____
$4 = (2 + 0!)^2 - 5$ _____	$27 = 20 + 2 + 5$ _____
$5 = 2 \times 0 \times 2 + 5$ _____	$28 = 2 + 0! + 25$ _____
$6 = 2 + 0! - 2 + 5$ _____	$29 = (2 + 0 + 2)! + 5$ _____
$7 = 2 \times 0 + 2 + 5$ _____	$30 = (2 + 0!) \times 2 \times 5$ _____
$8 = 2^0 + 2 + 5$ _____	$31 = -2^0 + 2^5$ _____
$9 = 2^{0!} + 2 + 5$ _____	$32 = 2 \times 0 + 2^5$ _____
$10 = 2 \times 0 + 2 \times 5, 2 + 0! + 2 + 5$ _____	$33 = 2^0 + 2^5$ _____
$11 = 2^0 + 2 \times 5$ _____	$34 = 2^{0!} + 2^5$ _____
$12 = 2^{0!} + 2 \times 5$ _____	$35 = 20 \times 2 - 5$ _____
$13 = 2^{(0!+2)} + 5$ _____	$36 = [\sqrt{20}] + 2^5$ _____
$14 = (2 + 0!)^2 + 5$ _____	$37 = [20 \times 2 - \sqrt{5}]$ _____
$15 = (2^0 + 2) \times 5$ _____	$38 = (2 + 0!)! + 2^5$ _____
$16 = (2 + 0!)! + 2 \times 5$ _____	$39 = 20 \times 2 - [\sqrt{\sqrt{5}}]$ _____
$17 = 2 + (2 + 0!) \times 5$ _____	$40 = 2^{(0!+2)} \times 5$ _____
$18 = 20 - [\sqrt{2 + 5}]$ _____	$41 = ((2 + 0!)!)^2 + 5$ _____
$19 = (2 + 0 + 2)! - 5$ _____	$42 = 20 \times 2 + \sqrt{5}$ _____
$20 = (2 + 0 + 2) \times 5$ _____	$43 = [\sqrt{20}]! \times 2 - 5$ _____
$21 = 20 - \sqrt{2} + \sqrt{5}$ _____	$44 = -\left[\sqrt{((2 + 0!)!)!} + \sqrt{(2 + 5)!}\right]$ _____
$22 = -2 - 0! + 25$ _____	$45 = 20 \times 2 + 5$ _____
$23 = 20 - 2 + 5$ _____	$46 = [\sqrt{20}]! \times 2 - [\sqrt{5}]$ _____

$$47 = [\sqrt{20}]! \times 2 - [\sqrt{\sqrt{5}}] \underline{\hspace{2cm}}$$

$$48 = 2 \times (0! - 2 + 5)! \underline{\hspace{2cm}}$$

$$49 = [\sqrt{20}]! + 25 \underline{\hspace{2cm}}$$

$$50 = (2 + 0) \times 25. \underline{\hspace{2cm}}$$