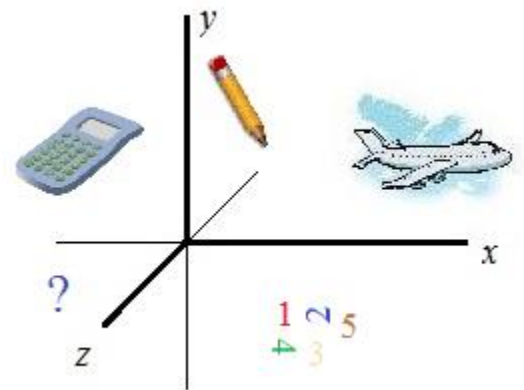# 2 - 0 - 1 - 5

Numbers Puzzle

2015

Using 2, 0, 1, 5, and any combination of math symbols/operations, write equations that compute to every number between 1 and 25.

Note: Each digit must be used <u>exactly</u> once!

Examples: 0 $= 0 \times 215$

$= 52^0 - 1$

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

Part 2: Challenge

Using 2, 0, 1, 5, and any combination of math symbols/operations, write equations that compute to every number between 26 and 50.

Note: Each digit must be used <u>exactly</u> once!

Examples:
$0 \quad = 0 \times 215$

$\quad = 52^0 - 1$

26	38
27	39
28	40
29	41
30	42
31	43
32	44
33	45
34	46
35	47
36	48
37	49
	50

2 - 0 - 1 - 5   Hints

(Useful math operations/symbols)

factorials:
0! = 1
3! = 3 x 2 x 1 = 6

greatest integer function (floor function)
$\lfloor 5.6 \rfloor = 5$

least integer function (ceiling function)
$\lceil 5.6 \rceil = 6$

square root:
$\sqrt{(5-1)} = 2$

2015

Using 2, 0, 1, 5, and any combination of math symbols/operations, write equations that compute to every number between 1 and 25.

mathplane solution: 6 minutes, 34 seconds

Note: Each digit must be used <u>exactly</u> once!

Examples:

0    $= 0 \times 215$

$= 52^0 - 1$

1    $(0 \times 25) + 1$

2    $2 + (0 \times 15)$

3    $(2 + 1) - (0 \times 5)$

4    $5 - 2 + 1 + 0$ $\dfrac{10}{5} + 2$

5    $\dfrac{20}{5} + 1$

6    $(5 + 1) + (2 \times 0)$ $21^0 + 5$

7    $5 + 2 + (1 \times 0)$

8    $5 + 2 + 1 + 0$

9    $2 \times 5 - 1 + 0$

10    $\dfrac{10}{2} + 5$ $2 \times 5 \times 1 + 0$

11    $(2 \times 5 + 1) + 0$

12    $12 + (5 \times 0)$

13    $15 - 2 + 0$

14    $20 - 5 - 1$

15    $25 - 10$

16    $20 - 5 + 1$ $15 + 2^0$

17    $10 + 2 + 5$

18    $15 + 2 + 0!$

19    $20 - 1^5$

20    $10 + (5 \times 2)$

21    $21 + (5 \times 0)$

22    $2^5 - 10$

23    $(5 - 1)! - 2^0$

24    $25 - 1 + 0$

25    $5^2 + 0 \times 1$

2015

Part 2: Challenge

Using 2, 0, 1, 5, and any combination of math symbols/operations, write equations that compute to every number between 26 and 50.

Mathplane Solution: 32 minutes

Note: Each digit must be used _exactly_ once!

Examples:

$0 \quad = 0 \times 215$

$\quad = 52^0 - 1$

26	$5^2 + 1 - 0$	$21 + 5 + 0$	$\dfrac{50}{2} + 1$

$27 \quad 5^2 + 1 + 0! \qquad 0! = 1$

$28 \quad (15 - 0!) \times 2$

$29 \quad (2 \times 15) - 0!$

$30 \quad 15 \times 2 + 0$

$31 \quad 51 - 20$

$32 \quad 2 \times (15 + 0!)$

$33 \quad 2^5 + 1 + 0$

$34 \quad 2^5 + 1 + 0!$

$35 \quad 20 + 15 \qquad 5^2 + 10$

$36 \quad (1 + 5)^2 + 0$

$37 \quad (1 + 5)^2 + 0!$

$38 \quad 50 - 12$

$5! = 120$

$39 \quad 5! \div (2 + 1) - 0! \qquad 120 \div (3) - 1$

$40 \quad 5! \div (2 + 1 + 0)$

$41 \quad 5! \div (2 + 1) + 0!$

$42 \quad 52 - 10$

$43 \quad [\![\sqrt{5} \times 20]\!] - 1$

$[\![2.23 \times 20]\!] - 1$
$[\![44.6]\!] - 1$
$44 - 1$
(using greatest integer function)

$44 \quad (5 - 1)! + 20$

$45 \quad 51 - (2! + 0!)!$

$51 - (2 + 1)!$
$51 - 3!$
$51 - 6$

$46 \quad ((5 - 1)! - 0!) \times 2$

$(4! - 0!) \times 2$
$(24 - 1) \times 2$
23×2
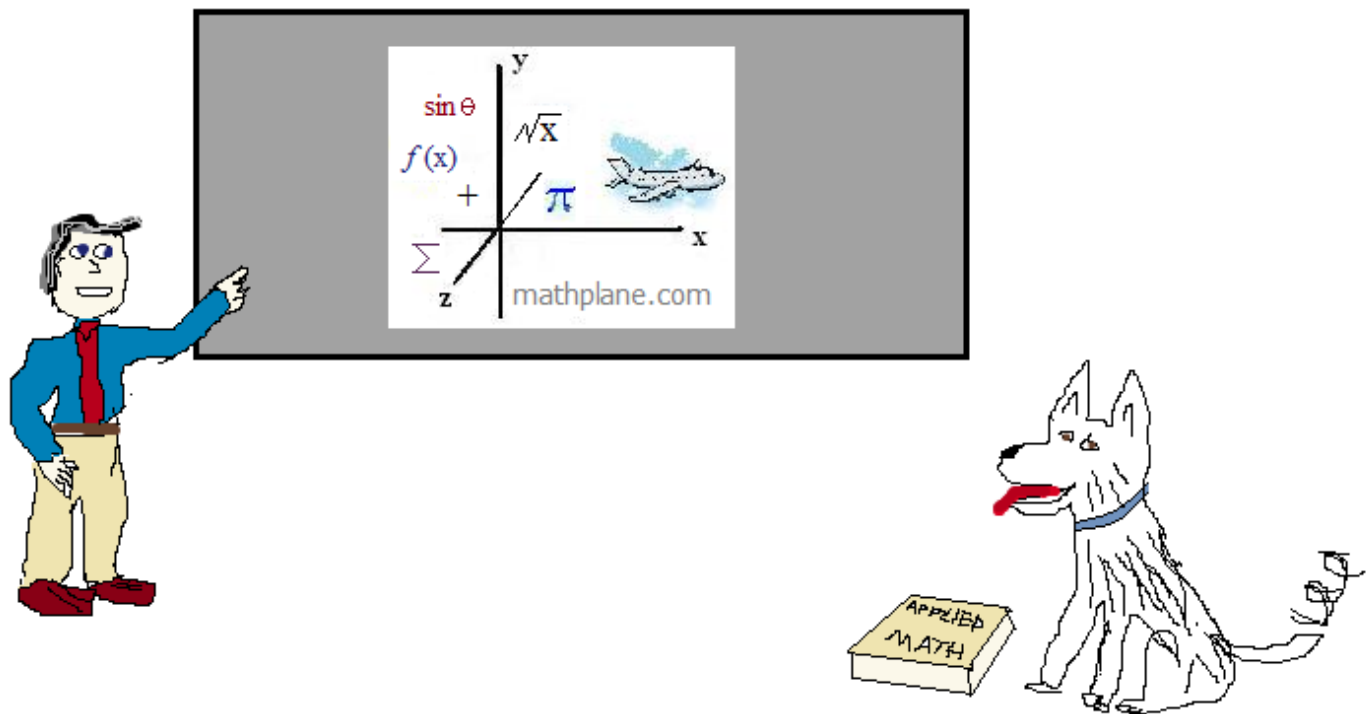
$47 \quad 50 - 2 - 1 + 0$

$48 \quad 50 - 2^1$

$49 \quad 50 - 1^2$

$50 \quad \dfrac{5!}{2} - 10$

Thanks for visiting!

If you have questions, suggestions, or requests, let us know.

Best in 2015!

Also, at Facebook, Google+, Pinterest, and TeachersPayTeachers