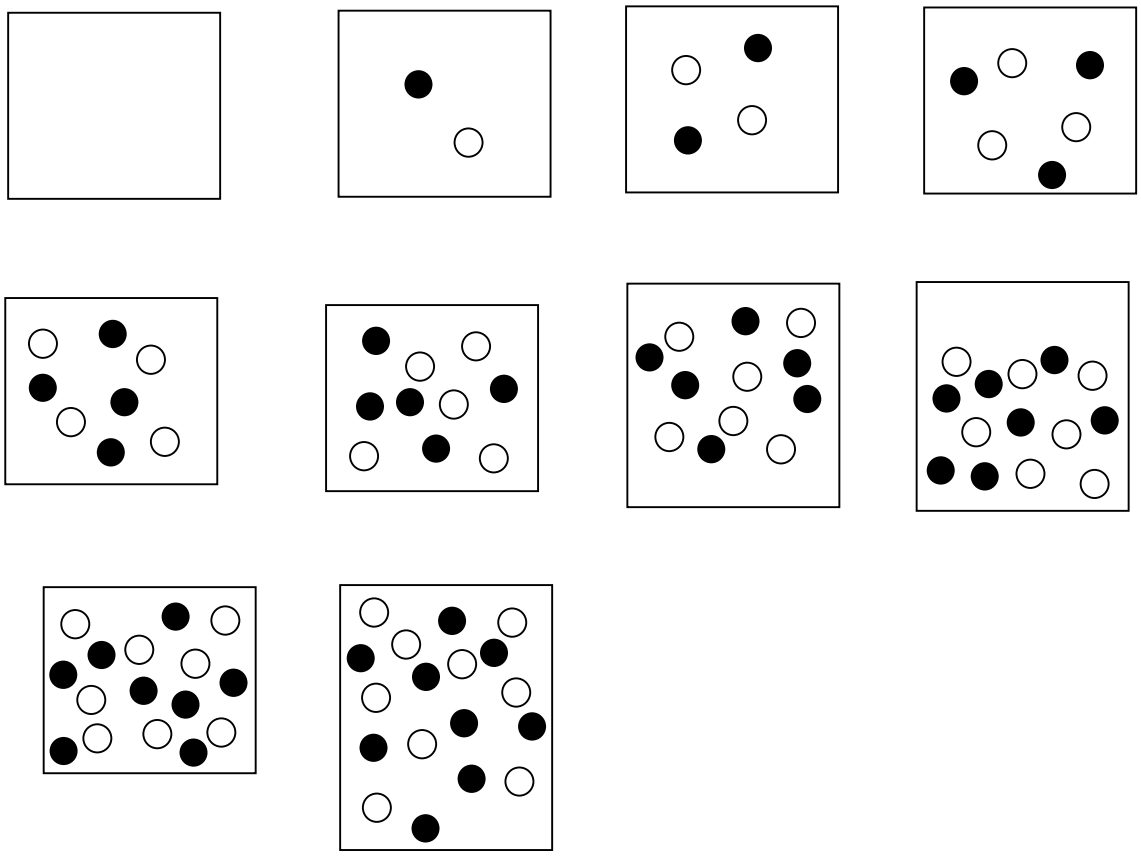
Sense of Arithmetic 1

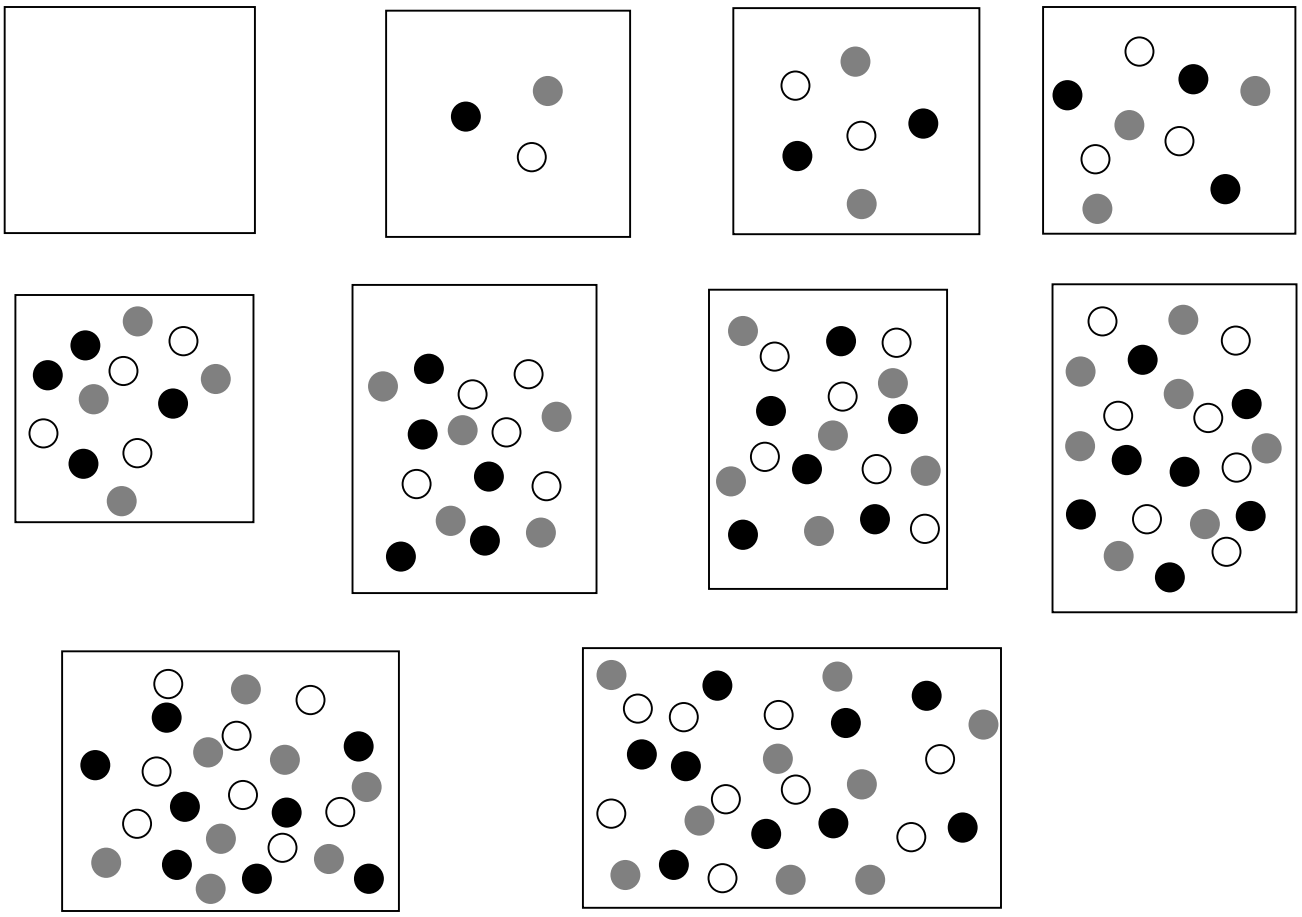
Click this to start.

How many dots in each color do you find in each rectangle below?

And how many dots does each rectangle have?



How many dots in each color do you find in each rectangle below?
And how many dots does each rectangle have?



Read the calculations below if you want to. And reading them, just keep reading at your pace. It can help increase sense of arithmetic, along with mental math. You don't have to read all at once. Each reading can take 5, 10, or 15 minutes at a time, or as much as you can concentrate. And having read them all, read them again when you feel like it. If however, getting used to much of the stuff, move on to the next section.

Note that you don't have to do calculations the way below.
Each calculation just shows that **there are many ways we can calculate**.

0 = 1 x 0 = 0 x 1 = 0 + 0 = 2 x 0 = 0 x 2 = 0 + 0 + 0 = 3 x 0 = 0 x 3

= 0 + 0 + 0 + 0 + . . . + 0 = 0 x 97 = 97 x 0 = 238 x 0 = 0 = . . .

1 = 1 x 1 = 1 + 1 – 1 = 2 – 1 = 3 + 2 – 2 – 3 + 1 = 0 + 1 = 1 + 0 = . . .

2 = 1 + 1 = 1 x 2 = 2 x 1 = . . .

3

= 1 + 1 + 1 = 1 x 3 = 3 x 1

= 1 + 2 = 1 + (1 + 1) = 1 + 1 x 2 = 1 + 2 x 1

= 2 + 1 = (1 + 1) + 1 = 1 x 2 + 1 = 2 x 1 + 1

= 0 + 3 = . . .

4

= 1 + 1 + 1 + 1 = 1 x 4

= 1 + 3 = 1 + 1 x 3

= 3 + 1 = 1 x 3 + 1

= 2 + 2 = 2 x 2 = . . .

5

= 1 + 1 + 1 + 1 + 1 = 1 x 5 = 5 x 1

= 1 + 4 = 4 + 1 = 2 + 3 = 3 + 2 = . . .

6

= 1 x 6 = 6 x 1

= 1 + 5 = 5 + 1

= 2 + 4 = 2 + 2 x 2

= 4 + 2 = 2 x 2 + 2

= 2 + 2 + 2

= 2 x 3 = 3 x 2 = . . .

7

= 1 x 7 = 7 x 1

= 2 + 5 = 5 + 2

= 1 + 6 = 1 + 2 x 3 = 1 + 3 x 2

= 3 + 4 = 3 + 2 x 2 = 1 x 3 + 1 x 2 x 2

= 1 x 1 x 3 + 1 x 2 x 2 x 1 = . . .

8

= 8 x 1

= 1 + 1 + 1 + . . . + 1 = 1 x 8

= 2 + 2 + 2 + 2 = 2 x 4

= 4 + 4 = 4 x 2

= 3 + 5 = 5 + 3 = . . .

9

= 9 x 1

= 1 + 1 + 1 + . . . + 1 = 1 x 9

= 4 + 5 = 5 + 4

= 4 + (4 + 1) = 4 + 4 + 1 = 4 x 2 + 1 = 2 x 4 + 1

= 8 + 1 = 2 x 4 + 1 = 4 x 2 + 1

= 3 + 3 + 3 = 3 x 3

= 3 + 6 = 3 + (3 + 3) = 3 + 3 x 2 = 3 x 1 + 3 x 2 = 3 x (1 + 2) = 3 x 3

= 6 + 3 = (3 + 3) + 3 = 3 x 2 + 3 = 3 x 2 + 3 x 1 = 3 x (2 + 1) = 3 x 3

= 2 + 7 = 7 + 2

= 2 + (2 + 5)

$= 2 + 2 + 5$

$= 2 \times 2 + 5$

$= 2 \times 2 + (2 + 3)$

$= 2 \times 2 + 2 + 3$

$= 2 \times 2 + 2 \times 1 + 3$

$= 2 \times (2 + 1) + 3$

$= 2 \times 3 + 3$

$= 3 \times 2 + 3 \times 1$

$= 3 \times (2 + 1)$

$= 3 \times 3$

$= (2 + 1) \times (2 + 1)$

$= (2 + 1) \times 2 + (2 + 1) \times 1$

$= (2 \times 2 + 1 \times 2) + (2 \times 1 + 1 \times 1)$

$= 2 \times 2 + 2 + 2 + 1$

$= 4 + 2 + 2 + 1$

$= 4 + 2 \times 2 + 1$

$= 4 + 4 + 1 = 4 \times 2 + 1 = \ldots$

$10 = 10 \times 1 + 1 \times 0 = 1 + 9 = 9 + 1 = 2 + 8 = 8 + 2 = 8 + 1 + 1$

$= 3 + 7 = 7 + 3 = 7 + 2 + 1 = 4 + 6 = 6 + 4 = 6 + 2 + 2 = 6 + 2 \times 2$

$= 5 + 5 = 5 \times 2 = 2 \times 5$

$= 1 + 9 = 1 \times 1 + 9 \times 1 = 1 \times 1 + 1 \times 9$

$= 1 + 1 + 8 = 1 \times 2 + 8 \times 1 = 2 \times 1 + 1 \times 8$

$= 1 + 1 + 1 + 7 = 1 \times 3 + 7 \times 1 = 3 \times 1 + 1 \times 7 = 1 + 2 + 7$

$= 1 + 1 + 1 + 1 + 6 = 2 + 2 + 6$

$= 2 \times 2 + 3 + 3 = 3 \times 2 + 2 \times 2 = 2 \times 3 + 2 \times 2 = 2 \times (3 + 2) = 2 \times 5$

$= 1 + 1 + 1 + 1 + 1 + 5 = 1 \times 5 + 5 \times 1 = 5 \times 1 + 5 \times 1 = 5 \times (1 + 1)$

$= 5 \times 2 = 2 \times 5$

$= (1 + 1) + (1 + 1) + (1 + 1) + (1 + 1) + (1 + 1) = 2 + 2 + 2 + 2 + 2$

$= 2 \times 5 = 5 \times 2$

$= (1 + 1 + 1 + 1 + 1) + (1 + 1 + 1 + 1 + 1) = 5 + 5 = 5 \times 2 = 2 \times 5$

= 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1 + 1

= 1 + (1 + 1) + (1 + 1 + 1) + (1 + 1 + 1 + 1)

= 1 + 2 + 3 + 4 = (1 + 2) + (3 + 4) = 3 + 7

= 1 + 2 + 3 + 4 = 2 + 4 + 1 + 3 = 2 + (4 + 1) + 3 = 2 + 5 + 3

= 2 + (5 + 3) = 2 + 8 = . . .

11 = 10 + 1 = 5 x 2 + 1 = 5 + 5 + 1 = 1 x 5 + 1 x 5 + 1 = 1 x (5 + 5 + 1)

= 1 x 11 = …

12 = 10 + 2 = 5 x 2 + 2

= 2 x 5 + 2 x 1

= 2 x (5 + 1)

= 2 x 6

= 6 x 2

= 6 + 6

= 4 + 2 + 4 + 2 = 4 x 2 + 2 + 2 = 4 x 2 + 4 = 4 x (2 + 1) = 4 x 3 = 3 x 4 = . . .

$13 = 10 + 3 = 5 \times 2 + 3 = 5 \times 2 + 2 + 1 = 12 + 1 = \ldots$

$14 = 10 + 4 = 5 \times 2 + 4 = 2 \times 5 + 2 \times 2 = 2 \times (5 + 2) = 2 \times 7 = 7 \times 2 = \ldots$

$15 = 10 + 5 = 5 \times 2 + 5 = 5 \times (2 + 1) = 5 \times 3 = 5 \times (1 + 1 + 1) = 5 + 5 + 5$

$= \ldots$

$16 = 10 + 6 = 10 + 5 + 1$

$= 5 \times 2 + 5 + 1 = 5 + 5 + 5 + 1 = 5 + 1 + 4 + 5 + 1$

$= 6 + 4 + 6 = 6 \times 2 + 4 = 12 + 4 = (10 + 2) + 4$

$= 10 + 2 + 4 = 5 + 5 + 2 + 4$

$= 4 + 1 + 4 + 1 + 2 + 4 = 4 + 4 + 4 + 1 + 1 + 2 = 4 + 4 + 4 + 4 = 4 \times 4$

$= 4 \times 3 + 1 + 1 + 2$

$= 4 \times 3 + 4 = 4 \times (3 + 1) = 4 \times (1 + 2 + 1)$

$= 4 \times 1 + 4 \times 2 + 4 \times 1$

$= 4 + 8 + 4$

$= 4 + 12 = \ldots$

$17 = 10 + 7 = 5 \times 2 + 7 = 5 \times 2 + (5 + 2) = 5 \times 3 + 2 = \ldots$

18

$= 10 + 8 = 5 \times 2 + 8 = 5 \times 2 + 4 \times 2 = (5 + 4) \times 2 = 9 \times 2 = 2 \times 9 = \ldots$

$= 6 + 4 + 8 = 6 + 4 + 6 + 2$

$= 6 + 6 + 4 + 2$

$= 6 + 6 + 6 = 6 \times 3 = 3 \times 6 = \ldots$

$19 = 10 + 9 = 5 \times 2 + 5 + 4 = 5 \times 3 + 4 = \ldots$

$20 = 10 \times 2 = (5 \times 2) \times 2 = 5 \times 2 \times 2 = 5 \times 4 = 4 \times 5 = \ldots$

$21 = 10 \times 2 + 1 = 10 + 10 + 1 = 10 + 11 = \ldots$

$22 = 20 + 2 = 10 \times 2 + 1 \times 2 = (10 + 1) \times 2 = 11 \times 2 = 2 \times 11 = \ldots$

$23 = 20 + 3 = 10 \times 2 + 1 \times 3 = \ldots$

. . .

98 = 10 x 9 + 8 = 90 + 8 = 90 + 4 + 4 = 90 + 4 x 2 = . . .

99 = 10 x 9 + 9 = (5 + 5) x 9 + 9 = (5 + 5 + 1) x 9 = 11 x 9 = . . .

100 = 100 x 1 + 10 x 0 + 1 x 0

100 = 100 x 1 = 10 x 10 x 1 = 10 x 10

100 = 0 + 100 = 1 + 99 = 2 + 98 = 3 + 97 = . . .

100 = 0 + 100 = 5 + 95 = 10 + 90 = 15 + 85 = 20 + 80 = . . .

100 = 10 + 20 + 30 + 40 = 10 x 1 + 10 x 2 + 10 x 3 + 10 x 4

= 10 x (1 + 2 + 3 + 4) = 10 x 10

= 5 x 2 + 5 x 4 + 5 x 6 + 5 x 8

= 5 x (2 + 4 + 6 + 8)

= 5 x 20 = . . .

Note again, you don't have to do calculations the way above.

Each calculation just shows that **there are many ways we can calculate**. And there can be many ways you can break a value into pieces, and put the pieces together to get the same value. How many ways, though?

As many as you can think of.