

Sense of Arithmetic 2

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Read the calculations below if you want to. And if reading them, just keep reading at your pace.

It can help increase sense of arithmetic and 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.

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

$$0 + 0 = 0 \times 2 = 0, \text{ and } 0 - 0 = 0$$

$$0 + 1 = 1, \text{ and } 0 - 1 = -1$$

$$1 - 0 = 1, 1 + 1 = 1 \times 2 = 2, \text{ and } 1 - 1 = 0$$

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

$$2 - 1 = 1 + 1 - 1 = 1 + 0 = 1$$

$$1 - 2 = 1 - (1 + 1) = 1 - 1 - 1 = 0 - 1 = -1$$

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

$$3 - 2 = 1 + 2 - 2 = 1 + 0 = 1$$

$$2 - 3 = 2 - (2 + 1) = 2 - 2 - 1 = 0 - 1 = -1$$

$$5 + 3 = 8, 5 - 3 = 2, \text{ and } 3 - 5 = -2$$

$$8 + 4$$

$$= 8 + (2 + 2) = (8 + 2) + 2 = 10 + 2 = 12$$

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

$$8 - 4 = 4$$

$$10 + 0 = 10 \times (1 + 0) + 1 \times (0 + 0) = 10 \times 1 = 10$$

$$10 - 0$$

$$= 10 \times (1 - 0) = 10$$

$$= 10 \times (1 - 0) + 1 \times (0 - 0) = 10 + 0 = 10$$

$$10 + 1 = 11$$

$$10 - 1 = (0 + 1 \times 10) - 1 = 0 + (1 \times 10 - 1) = 0 + 9 = 9$$

$$1 - 10$$

$$= 1 - (0 + 1 \times 10) = 1 - (0 + 1 + 1 \times 9) = 1 - 1 - (0 + 1 \times 9)$$

$$= 0 - (0 + 9) = 0 - 9 = -9$$

$$10 + 9 = 19$$

$$10 - 9 = (0 + 1 \times 10) - 9 = (0 + (1 + 9)) - 9 = 1 + 9 - 9 = 1 + 0 = 1$$

$$10 + 10 = 10 \times 2 = 20$$

$$10 - 10 = 10 \times (1 - 1) = 10 \times 0 = 0$$

$$10 + 11 = 21$$

$$10 - 11 = 10 - (10 + 1) = 10 - 10 - 1 = 0 - 1 = -1$$

$$11 - 10 = (10 + 1) - (10 + 0) = 10 \times (1 - 1) + 1 \times (1 - 0) = 0 + 1 = 1$$

$$10 + 19 = 29$$

$$10 - 19 = 10 - (10 + 9) = (10 - 10) + (0 - 9) = 0 + (-9) = -9$$

$$19 - 10 = (10 + 9) - 10 = (10 - 10) + (9 - 0) = 0 + 9 = 9$$

$$14 + 4 = 18$$

$$14 - 4 = 10 \times (1 - 0) + 1 \times (4 - 4) = 10 \times 1 + 1 \times 0 = 10 + 0 = 10$$

$$4 - 14 = 10 \times (0 - 1) + 1 \times (4 - 4) = 10 \times (-1) + 1 \times 0 = 10 \times (-1) + 0 = -10$$

$$16 + 9$$

$$= 16 + (4 + 5)$$

$$= (16 + 4) + 5$$

$$= \{(10 + 6) + 4\} + 5$$

$$= \{10 + (6 + 4)\} + 5$$

$$= (10 + 10) + 5$$

$$= 10 \times 2 + 5 = 20 + 5$$

$$16 + 9$$

$$= (10 + 6) + 9$$

$$= \{10 + (5 + 1)\} + 9$$

$$= \{(10 + 5) + 1\} + 9$$

$$= (10 + 5) + (1 + 9)$$

$$= (10 + 5) + 10$$

$$= 10 + 5 + 10 = 10 + 10 + 5 = 10 \times 2 + 5$$

$$16 - 9$$

$$= 10 \times (1 - 0) + 1 \times (6 - 9) = 10 \times 1 + (-3) = 10 + (-3) = 10 - 3 = 7$$

$$= 10 \times (0 - 0) + 1 \times (10 + 6 - 9)$$

$$= 10 \times 0 + 1 \times (6 + 10 - 9) = 0 + 1 \times (6 + 1) = 1 \times 7 = 7$$

$$9 - 16$$

$$= 10 \times (0 - 1) + 1 \times (9 - 6)$$

$$= 10 \times (-1) + 1 \times 3$$

$$= -10 + 3$$

$$= 3 + (-10)$$

$$= 3 - 10 = 1 \times (3 - 10) = 1 \times (-7) = -7$$

$$-10 + 3$$

$$= -(7 + 3) + 3$$

$$= 3 + \{-(7 + 3)\}$$

$$= 3 + \{-(3 + 7)\}$$

$$= 3 - (3 + 7)$$

$$= 3 - 3 - 7 = 0 - 7 = -7$$

$$\begin{aligned}
 39 + 58 &= (30 + 9) + (50 + 8) \\
 &= 30 + 50 + 9 + 8 = 30 + 50 + 7 + (2 + 8) \\
 &= 30 + 50 + 7 + 10 = 90 + 7 = 97
 \end{aligned}$$

$$\begin{aligned}
 &30 + 50 + 7 + 10 \\
 &= 10 \times (3 + 5 + 1) + 7 = 10 \times (8 + 1) + 7 = 10 \times 9 + 7 = 90 + 7 = 97
 \end{aligned}$$

$$\begin{aligned}
 39 - 58 &= 10 \times (3 - 5) + 1 \times (9 - 8) \\
 &= 10 \times (-2) + 1 \times 1 \\
 &= 10 \times (-1) + ((-1) \times 10 + 1) \\
 &= -10 + (1 + (-1) \times 10) \\
 &= -10 + (1 + (-1) \times (1 + 9)) \\
 &= -10 + (1 + ((-1) + (-9))) \\
 &= -10 + (1 + (-1)) + (-9) \\
 &= -10 + (1 - 1) + (-9) \\
 &= -10 + 0 + (-9) \\
 &= -10 + (-9) \\
 &= (-10) \times 1 + (-1) \times 9 = -19
 \end{aligned}$$

$$78 + 85 + 69$$

$$= (70 + 80 + 60) + (8 + 5 + 9)$$

$$= (70 + 80 + 60) + (8 + (2 + 3) + 9)$$

$$= (70 + 80 + 60) + ((10 + 3) + 9)$$

$$= (70 + 80 + 60) + (10 + (3 + 9))$$

$$= (70 + 80 + 60) + (10 + ((2 + 1) + 9))$$

$$= (70 + 80 + 60) + (10 + (2 + 10))$$

$$= (70 + 80 + 60) + (10 \times 2 + 2)$$

$$= 10 \times (7 + 8 + 6 + 2) + 1 \times 2$$

$$= 10 \times (15 + 6 + 2) + 1 \times 2$$

$$= 10 \times (21 + 2) + 1 \times 2$$

$$= 10 \times 23 + 1 \times 2$$

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

$$= 100 \times 2 + 10 \times 3 + 1 \times 2$$

$$= 200 + 30 + 2 = 232$$

$$98 - 24 - 58 = (98 - 24) - 58 = 74 - 58 = 16$$

$$(98 - 24) - 58 = 98 - (24 + 58) = 98 - 82 = 16$$

$$34 - 45 - 76 + 27$$

$$= 34 - (45 + 76) + 27$$

$$= 34 + 27 - (45 + 76)$$

$$= 61 - 121$$

$$= (60 + 1) + ((-100) + (-20) + (-1))$$

$$= -100 + (60 + (-20)) + (1 + (-1))$$

$$= -100 + 40 + 0$$

$$= -100 \times 1 + 10 \times 4 + 1 \times 0$$

$$= -100 \times 0 + (10 \times 4 + (-10) \times 10) + 0$$

$$= 0 + 10 \times 4 + 10 \times (-10) + 0 = 10 \times (4 + (-10)) = 10 \times (-6) = -6 \times 10 = -60$$

$$= 34 + 27 - 45 - 76 = 61 + (-(45 + 76)) = 61 + (-121)$$

$$= 61 + (-61) + (-60) = -60$$

$$0 \times 0 = 0$$

$$0 \times 1 = 0$$

$$0 \times (-1) = 0$$

$$1 \times 0 = 0$$

$$(-1) \times 0 = 0$$

$$3 \times 2 = 3 + 3 = 6 \qquad (-3) \times 2 = -3 + (-3) = -6$$

$$3 \times (-2) = 3 \times (-1) \times 2 = -1 \times 3 \times 2 = -1 \times 6 = -6$$

$$-3 \times (-2) = -1 \times 3 \times (-1) \times 2 = -1 \times (-1) \times 3 \times 2 = 1 \times 6 = 6$$

$$12 \times 3 = 12 + 12 + 12 = 36$$

$$= (10 + 2) \times 3 = 10 \times 3 + 2 \times 3 = 30 + 6 = 36$$

$$15 \times 12$$

$$= (10 + 5) \times 12$$

$$= 10 \times 12 + 5 \times 12$$

$$= 10 \times (10 + 2) + 5 \times (10 + 2)$$

$$= 10 \times 10 + 10 \times 2 + 5 \times 10 + 5 \times 2$$

$$= 100 + 20 + 50 + 10 = 180$$

$$0.1 + 0.1 = 0.2$$

$$0.1 - 0.1 = 0$$

$$4.4 + 32.7$$

$$= (1 \times 4 + 0.1 \times 4) + (10 \times 3 + 1 \times 2 + 0.1 \times 7)$$

$$= 10 \times (0 + 3) + 1 \times (4 + 2) + 0.1 \times (4 + 7)$$

$$= 10 \times 3 + 1 \times (4 + 2) + 0.1 \times (10 + 1)$$

$$= 10 \times 3 + 1 \times (4 + 2 + 1) + 0.1 \times 1$$

$$= 30 + 7 + 0.1 = 37.1$$

$$4.4 - 32.7$$

$$= (1 \times 4 + 0.1 \times 4) - (10 \times 3 + 1 \times 2 + 0.1 \times 7)$$

$$= 10 \times (0 + (-3)) + 1 \times (4 + (-2)) + 0.1 \times (4 + (-7))$$

$$= 10 \times (-3) + 1 \times 2 + 0.1 \times (-3)$$

$$= 10 \times ((-2) + (-1)) + 1 \times 2 + 0.1 \times (-3)$$

$$= 10 \times (-2) + 10 \times (-1) + 1 \times 2 + 0.1 \times (-3)$$

$$= 10 \times (-2) + (-10) + 1 \times 2 + 0.1 \times (-3)$$

$$= 10 \times (-2) + 1 \times (-10) + 1 \times 2 + 0.1 \times (-3)$$

$$= 10 \times (-2) + 1 \times ((-10) + 2) + 0.1 \times (-3)$$

$$= 10 \times (-2) + 1 \times (-8) + 0.1 \times (-3) = -28.3$$

$$\begin{aligned}
1.8 \times 2 &= 1.8 + 1.8 \\
&= 1 \times (1 + 1) + 0.1 \times (8 + 8) \\
&= 1 \times (1 + 1) + 0.1 \times (10 + 6) \\
&= 1 \times (1 + 1 + 1) + 0.1 \times 6 \\
&= 1 \times 3 + 0.1 \times 6 = 3.6
\end{aligned}$$

$$\begin{aligned}
1.8 + 1.8 \\
&= (1 + 0.8) \times 2 \\
&= 1 \times 2 + 0.8 \times 2 \\
&= 1 \times 2 + 0.1 \times 8 \times 2 \\
&= 1 \times 2 + 0.1 \times 16 \\
&= 1 \times 2 + 0.1 \times (10 + 6) \\
&= 1 \times 2 + 0.1 \times 10 + 0.1 \times 6 \\
&= 1 \times (2 + 1) + 0.1 \times 6 \\
&= 1 \times 3 + 0.1 \times 6 = 3.6
\end{aligned}$$

$$0.3 \times 0.2 = 0.1 \times 3 \times 0.1 \times 2 = 0.1 \times 0.1 \times 3 \times 2 = 0.01 \times 6 = 0.06$$

$$0.3 \times 0.8$$

$$= 0.1 \times 3 \times 0.1 \times 8$$

$$= 0.1 \times 0.1 \times 3 \times 8$$

$$= 0.01 \times 24$$

$$= 0.01 \times (20 + 4)$$

$$= 0.01 \times 20 + 0.01 \times 4$$

$$= 0.01 \times 2 \times 10 + 0.01 \times 4$$

$$= 0.01 \times 10 \times 2 + 0.01 \times 4$$

$$= 0.1 \times 2 + 0.01 \times 4$$

$$= 0.2 + 0.04 = 0.24$$

$$1.9 \times 0.7 = (1 + 0.9) \times 0.7$$

$$= 1 \times 0.7 + 0.9 \times 0.7 = 0.7 + 0.1 \times 0.1 \times 9 \times 7$$

$$= 0.7 + 0.01 \times (60 + 3) = 0.7 + 0.01 \times (10 \times 6 + 3)$$

$$= 0.7 + (0.01 \times 10) \times 6 + 0.03 = 0.7 + 0.1 \times 6 + 0.03$$

$$= 0.7 + 0.6 + 0.03 = 0.1 \times (7 + 6) + 0.03$$

$$= 0.1 \times (10 + 3) + 0.03 = 0.1 \times 10 + 0.3 + 0.03$$

$$= 1 + 0.3 + 0.03 = 1.33$$

$$5.9 \times 9.8$$

$$= (5 + 0.9) \times (9 + 0.8)$$

$$= 5 \times (9 + 0.8) + 0.9 \times (9 + 0.8)$$

$$= 5 \times 9 + 5 \times 0.8 + 0.9 \times 9 + 0.9 \times 0.8$$

$$= 45 + 5 \times (0.1 \times 8) + 0.1 \times (9 \times 9) + 0.1 \times 0.1 \times (9 \times 8)$$

$$= 45 + 5 \times (8 \times 0.1) + 0.1 \times 81 + 0.01 \times 72$$

$$= 45 + (5 \times 8) \times 0.1 + 0.1 \times 81 + 0.01 \times 72$$

$$= 45 + 40 \times 0.1 + 0.1 \times 81 + 0.01 \times 72$$

$$= 45 + 0.1 \times 40 + 0.1 \times 81 + 0.01 \times 72$$

$$= 45 + 0.1 \times (40 + 81) + 0.01 \times 72$$

$$= 45 + 0.1 \times 121 + 0.01 \times 72$$

$$= 40 + 5 + 0.1 \times (100 + 20 + 1) + 0.01 \times (70 + 2)$$

$$= 40 + 5 + 0.1 \times 100 + 0.1 \times 20 + 0.1 + 0.01 \times 70 + 0.01 \times 2$$

$$= 40 + 5 + 0.1 \times 10 \times 10 + 0.1 \times 10 \times 2 + 0.1 + 0.01 \times 10 \times 7 + 0.01 \times 2$$

$$= 40 + 5 + 10 + 2 + 0.1 + 0.1 \times 7 + 0.01 \times 2$$

$$= 50 + 7 + 0.1 \times (1 + 7) + 0.01 \times 2$$

$$= 50 + 7 + 0.1 \times 8 + 0.01 \times 2$$

$$= 57.82$$

$$0.04 \times 7.9$$

$$= 0.04 \times (7 + 0.9)$$

$$= 0.04 \times 7 + 0.04 \times 0.9$$

$$= (0.01 \times 4) \times 7 + (0.01 \times 4) \times 0.9$$

$$= 0.01 \times (4 \times 7) + (0.01 \times 4) \times (0.1 \times 9)$$

$$= 0.01 \times (4 \times 7) + 0.01 \times 0.1 \times 4 \times 9$$

$$= 0.01 \times 28 + 0.001 \times 36$$

$$= 0.01 \times 28 + 0.001 \times (30 + 6)$$

$$= 0.01 \times 28 + 0.001 \times (10 \times 3 + 6)$$

$$= 0.01 \times 28 + 0.01 \times 3 + 0.001 \times 6$$

$$= 0.01 \times (28 + 3) + 0.001 \times 6$$

$$= 0.01 \times 31 + 0.006$$

$$= 0.01 \times (30 + 1) + 0.006$$

$$= 0.01 \times (10 \times 3) + 0.01 \times 1 + 0.006$$

$$= 0.1 \times 3 + 0.01 \times 1 + 0.006$$

$$= 0.3 + 0.01 + 0.006$$

$$= 0.316$$

$$0 / 1 = 0 / 2 = 0 / 3 = 0 / 10 = 0 / 26 = 0 / 502 = 0.$$

And in fact, we have: $0 / A = 0$ for all $A \neq 0$.

$$1 / 1 = 1 \text{ since } 1 = 1 \times 1$$

$$-1 / 1 = -1 \text{ since } -1 = 1 \times (-1) = (-1) \times 1$$

$$1 / (-1) = -1 \text{ since } 1 = (-1) \times (-1) = 1$$

$$-1 / (-1) = 1 \text{ since } -1 = (-1) \times 1 = -1$$

$$2 / 1 = 2 \text{ since } 2 = 1 \times 2$$

$$-2 / 1 = -2 \text{ since } -2 = 1 \times (-2) = (-2) \times 1$$

$$2 / (-1) = -2 \text{ since } 2 = (-1) \times (-2) = (-1) \times ((-1) \times 2) = ((-1) \times (-1)) \times 2 = 1 \times 2$$

$$2 / 2 = 1 \text{ since } 2 = 2 \times 1$$

$$-2 / 2 = -1 \text{ since } -2 = 2 \times (-1) = (-1) \times 2 = -2$$

$$2 / -2 = -1 \text{ since } 2 = (-2) \times (-1) = (-1) \times 2 \times (-1) = (-1) \times (-1) \times 2 = 1 \times 2$$

$$4 / 2 = 2 \text{ since } 4 = 2 \times 2, \text{ and } 6 / 3 = 2 \text{ since } 6 = 3 \times 2$$

$$10 / 1 = 10 \text{ since } 10 = 1 \times 10, \text{ and } 12 / 3 = 4 \text{ since } 12 = 3 \times 4$$

By the way, no division by 0 is allowed.

So no denominator in any fraction is 0. Why not?

First, $0 / 0 = 0, 1, 7,$ or any number, because if $0 / 0 = A$, we get: $0 = 0 \times A$ for all A . So no consistency, and thus, no solution.

Next, assuming $A / 0 = B$ for some $A \neq 0$ and $B \neq 0$, we get: $A = 0 \times B$, which is 0 no matter what B may be, but we have assumed that $A \neq 0$.

So we can use no number as B , and thus, $A / 0$ is not possible.

$$28 / 2$$

$$= (20 + 8) / 2 = (20 / 2) + (8 / 2) = 10 + 4 = 14$$

$$= (30 - 2) / 2 = (30 / 2) - (2 / 2) = 15 - 1 = 14$$

$$1248 / 4$$

$$= (1200 + 40 + 8) / 4$$

$$= (1200 / 4) + (40 / 4) + (8 / 4)$$

$$= ((100 \times 12) / 4) + ((10 \times 4) / 4) + ((1 \times 8) / 4)$$

$$= (100 \times (12 / 4)) + (10 \times (4 / 4)) + (1 \times (8 / 4))$$

$$= 100 \times 3 + 10 \times 1 + 1 \times 2$$

$$= 300 + 10 + 2 = 312$$

$$1248 / 4 / 2$$

$$= (1248 / 4) / 2$$

$$= 1248 / (4 \times 2)$$

$$= 1248/8$$

$$= 156$$

$$1248 / 4 / 2$$

$$= 312 / 2$$

$$= (100 \times 3 + 10 \times 1 + 1 \times 2) / 2$$

$$= 100 \times (3 / 2) + 10 \times (1 / 2) + 1 \times (2 / 2)$$

$$= 100 \times (1 + 1 / 2) + 10 \times (1 / 2) + 1 \times (2 / 2)$$

$$= 100 \times 1 + 100 / 2 + 10 / 2 + 1 \times 1$$

$$= 100 \times 1 + (10 \times 10) / 2 + (1 \times 10) / 2 + 1 \times 1$$

$$= 100 \times 1 + 10 \times (10 / 2) + 1 \times (10 / 2) + 1 \times 1$$

$$= 100 \times 1 + 10 \times 5 + 1 \times 5 + 1 \times 1$$

$$= 100 \times 1 + 10 \times 5 + 1 \times (5 + 1)$$

$$= 100 \times 1 + 10 \times 5 + 1 \times 6$$

$$= 156$$

$$1 / 2$$

$$= (0.1 \times 10) / 2 = 0.1 \times (10 / 2) = 0.1 \times 5 = 0.5$$

$$= 0.5, \text{ since } 0.5 \times 2 = 1$$

$$0.1 / 2$$

$$= (0.01 \times 10) / 2 = 0.01 \times (10 / 2) = 0.01 \times 5 = 0.05$$

$$= 0.05, \text{ since } 0.05 \times 2 = 0.1$$

$$3 / 2 = (2 + 1) / 2 = 2 / 2 + 1 / 2 = 1 + 0.5 = 1.5$$

$$15 / 6$$

$$= (12 + 3) / 6$$

$$= 12 / 6 + 3 / 6$$

$$= 2 + (1 \times 3) / 6$$

$$= 2 + ((0.1 \times 10) \times 3) / 6$$

$$= 2 + (0.1 \times (10 \times 3)) / 6$$

$$= 2 + (0.1 \times 30) / 6$$

$$= 2 + 0.1 \times (30 / 6)$$

$$= 2 + 0.1 \times 5$$

$$= 2 + 0.5 = 2.5$$

$$\begin{aligned}
3.9 / 2 &= (3 + 0.9) / 2 \\
&= (1 \times 3 + 0.1 \times 9) / 2 \\
&= (1 \times 3) / 2 + (0.1 \times 9) / 2 \\
&= 1 \times (3 / 2) + 0.1 \times (9 / 2) \\
&= 1 \times ((2 + 1) / 2) + 0.1 \times ((8 + 1) / 2) \\
&= 1 \times ((2 / 2) + (1 / 2)) + 0.1 \times ((8 / 2) + (1 / 2)) \\
&= 1 \times (1 + 0.5) + 0.1 \times (4 + 0.5) \\
&= 1 \times 1 + 0.5 + 0.4 + 0.05 \\
&= 1 \times 1 + 0.1 \times (5 + 4) + 0.01 \times 5 \\
&= 1 \times 1 + 0.1 \times 9 + 0.01 \times 5 \\
&= 1.95
\end{aligned}$$

$$\begin{aligned}
2 / 4 &= (1 \times 2) / 4 = ((0.1 \times 10) \times 2) / 4 = (0.1 \times (10 \times 2)) / 4 \\
&= (0.1 \times 20) / 4 = 0.1 \times (20 / 4) = 0.1 \times 5 = 0.5
\end{aligned}$$

$$\begin{aligned}
1 / 4 &= (0.1 \times 10) / 4 = 0.1 \times (10 / 4) = 0.1 \times ((8 + 2) / 4) = 0.1 \times ((8 / 4) + (2 / 4)) \\
&= 0.1 \times (2 + 0.5) = 0.1 \times 2 + 0.05 = 0.1 \times 2 + 0.01 \times 5 = 0.25
\end{aligned}$$

$$9.7 / 4 = (9 + 0.7) / 4 = 9 / 4 + 0.7 / 4 = (8 + 1) / 4 + (0.1 \times 7) / 4$$

$$= 2 + 1 / 4 + 0.1 \times (7 / 4)$$

$$= 2 + 0.25 + 0.1 \times ((4 + 3) / 4)$$

$$= 2 + 0.25 + 0.1 \times (1 + 3 / 4)$$

$$= 2 + 0.25 + 0.1 \times (1 + (0.1 \times 30) / 4)$$

$$= 2 + 0.25 + 0.1 \times (1 + 0.1 \times (30 / 4))$$

$$= 2 + 0.25 + 0.1 \times (1 + 0.1 \times ((28 + 2) / 4))$$

$$= 2 + 0.25 + 0.1 \times (1 + 0.1 \times (7 + 2 / 4))$$

$$= 2 + 0.25 + 0.1 \times (1 + 0.1 \times (7 + 0.5))$$

$$= 2 + 0.25 + 0.1 \times (1 + 0.7 + 0.05)$$

$$= 2 + 0.25 + 0.1 + 0.07 + 0.005$$

$$= 2 + 0.2 + 0.05 + 0.1 + 0.07 + 0.005$$

$$= 2 + 0.1 \times (2 + 1) + 0.01 \times (5 + 7) + 0.005$$

$$= 2 + 0.1 \times 3 + 0.01 \times (10 + 2) + 0.005$$

$$= 2 + 0.1 \times 3 + 0.01 \times 10 + 0.01 \times 2 + 0.005$$

$$= 2 + 0.1 \times 3 + 0.1 \times 1 + 0.01 \times 2 + 0.005$$

$$= 2 + 0.1 \times 4 + 0.01 \times 2 + 0.005$$

$$= 2.425$$

$$1 / 0.1 = (0.1 \times 10) / 0.1 = (10 \times 0.1) / 0.1 = 10 \times (0.1 / 0.1) = 10 \times 1 = 10$$

$$1 / 0.2 = (0.1 \times 10) / 0.2 = (10 \times 0.1) / 0.2 = 10 \times (0.1 / 0.2)$$

$$= 10 \times ((0.01 \times 10) / 0.2)$$

$$= 10 \times (0.01 \times (10 / 0.2))$$

$$= 10 \times (0.01 \times ((0.1 \times 100) / 0.2))$$

$$= 10 \times (0.01 \times ((0.1 \times (2 \times 50)) / 0.2))$$

$$= 10 \times (0.01 \times (((0.1 \times 2) \times 50) / 0.2))$$

$$= 10 \times (0.01 \times ((0.2 \times 50) / 0.2))$$

$$= 10 \times (0.01 \times ((50 \times 0.2) / 0.2))$$

$$= 10 \times (0.01 \times (50 \times (0.2 / 0.2)))$$

$$= 10 \times (0.01 \times (50 \times 1))$$

$$= 10 \times (0.01 \times (10 \times 5))$$

$$= 10 \times (0.1 \times 5)$$

$$= (10 \times 0.1) \times 5 = 1 \times 5$$

$$2 / 0.4 = (0.1 \times 20) / 0.4 = (0.1 \times (4 \times 5)) / 0.4 = ((0.1 \times 4) \times 5) / 0.4$$

$$= (0.4 \times 5) / 0.4 = (5 \times 0.4) / 0.4 = 5 \times (0.4 / 0.4) = 5 \times 1$$

$$7.9 / 0.4$$

$$= (7 + 0.9) / 0.4$$

$$= 7 / 0.4 + 0.9 / 0.4$$

$$= (4 + 3) / 0.4 + (0.1 \times 9) / 0.4$$

$$= 4 / 0.4 + 3 / 0.4 + 0.1 \times (9 / 0.4)$$

$$= 10 + (1 \times 3) / 0.4 + 0.1 \times (1 \times 9) / 0.4$$

$$= 10 + ((0.1 \times 10) \times 3) / 0.4 + 0.1 \times 0.1 \times 10 \times 9 / 0.4$$

$$= 10 + (0.1 \times 30) / 0.4 + 0.1 \times (0.1 \times 90) / 0.4$$

$$= 10 + 0.1 \times ((28 + 2) / 0.4) + 0.1 \times 0.1 \times (88 + 2) / 0.4$$

$$= 10 + 0.1 \times (28 / 0.4 + 5) + 0.1 \times 0.1 \times (88 / 0.4 + 5)$$

$$= 10 + 0.1 \times ((7 \times 4) / 0.4 + 5) + 0.1 \times 0.1 \times (22 \times 4 / 0.4 + 5)$$

$$= 10 + 0.1 \times (7 \times (4 / 0.4) + 5) + 0.1 \times 0.1 \times (22 \times (4 / 0.4) + 5)$$

$$= 10 + 0.1 \times (7 \times 10 + 5) + 0.1 \times 0.1 \times (22 \times 10 + 5)$$

$$= 10 + 0.1 \times 7 \times 10 + 0.1 \times 5 + 0.1 \times (0.1 \times (22 \times 10) + 0.1 \times 5)$$

$$= 10 + 7 + 0.5 + 0.1 \times (22 + 0.5)$$

$$= 10 + 7 + 0.5 + 0.1 \times (20 + 2) + 0.05$$

$$= 10 + 7 + 0.5 + 0.1 \times (2 \times 10) + 0.2 + 0.05$$

$$= 10 + 7 + 0.5 + 2 + 0.2 + 0.05 = 10 + 9 + 0.7 + 0.05 = 19.75$$

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 them together to get the same value as many ways as you can think of.