

Starting to explore four consecutive numbers Challenge.

Take four consecutive numbers a, b, c, d

1.a They sum to 130. What are they?

Solution:

$$b = a + 1, c = a + 2, d = a + 3$$

$$a + b + c + d = a + (a + 1) + (a + 2) + (a + 3) = 4a + 6 = 130$$

$$4a = 124 \rightarrow a = 124 : 4 = 31$$

So $a = 31, b = 32, c = 33, d = 34$.

1.8 The four consecutive numbers sum to -38
What are they?

Solution:

Follow from 1a:

$$4a + 6 = -38$$

$$4a = -38 - 6$$

$$4a = -44$$

$$a = -11,$$

So $a = -11$, $b = -10$, $c = -9$, $d = -8$

② The sum of the first three consecutive numbers is 10 more than the fourth.
What are the four numbers?

Solution:

$a, a+1, a+2, a+3$

$$a + (a+1) + (a+2) = 10 + (a+3)$$

$$3a + 3 = a + 13$$

$$2a = 10$$

$$a = 5$$

So $a=5, b=6, c=7, d=8$

③ What is $(a+d) - (b+c)$? Why?

Solution: $b = a+1$, $c = a+2$, $d = a+3$

$$a+d = a + (a+3) = 2a+3$$

$$b+c = (a+1) + (a+2) = 2a+3$$

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

④ Explore $a + b + c - d$.

Solution:

$$b = a + 1, \quad c = a + 2, \quad d = a + 3$$

$$a + b + c - d = a + a + 1 + a + 2 - (a + 3) = 3a + 3 - a - 3 = 2a$$

Answer: $2a$.