Average

$$\text{Avg} = \frac{\text{Sum of terms}}{\text{No of terms}}$$

Types → mistakenly written

- Numbers
- Add/sed
- Consecutive Avg

X Q

⇒ Avg of first n natural nos = $\frac{n+1}{2}$

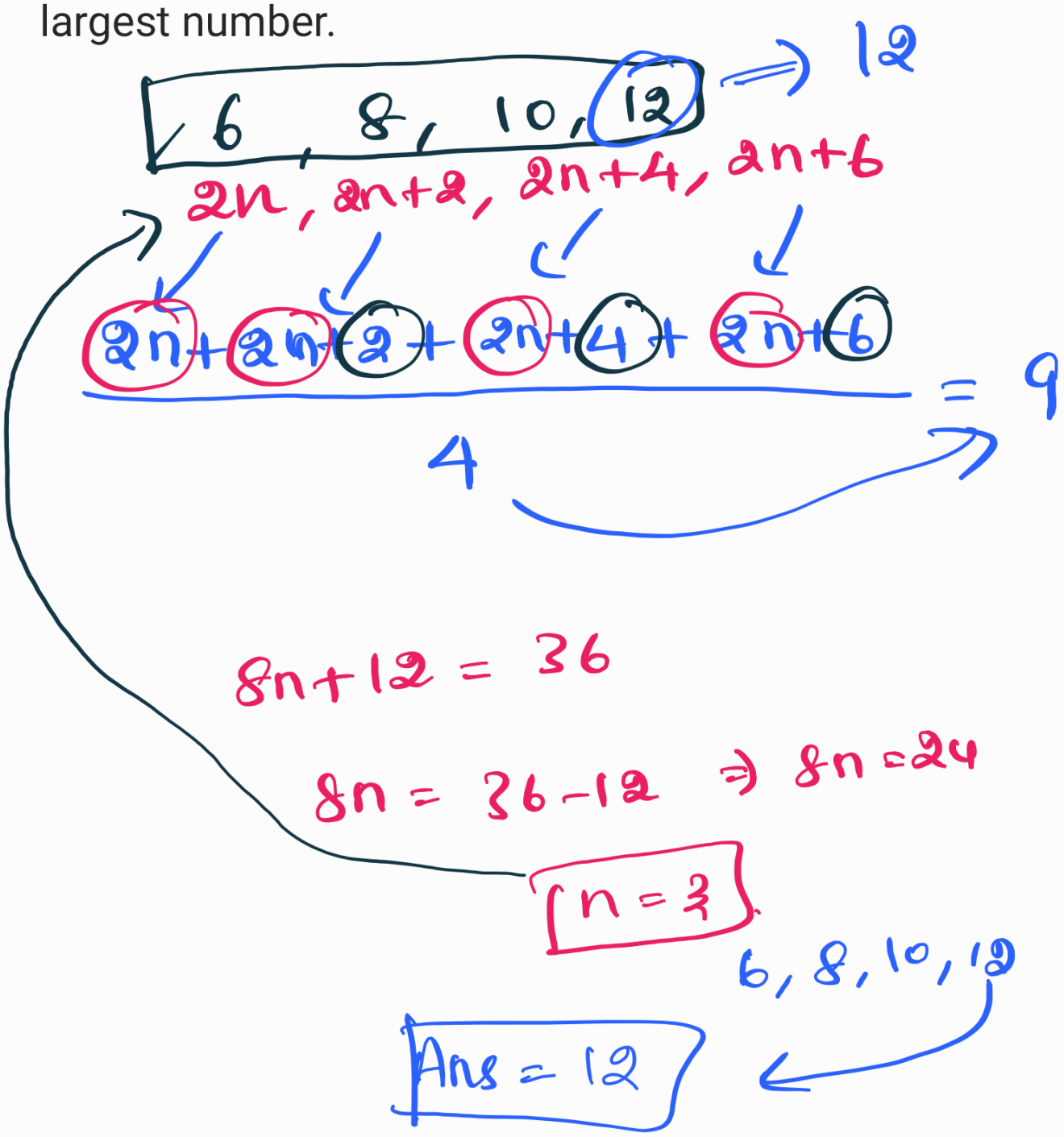
⇒ Avg of first n even nos = $(n+1)$

⇒ Avg of first n odd nos = n

⇒ Avg of sum of squares of first n natural nos = $\frac{(n+1)(2n+1)}{6}$

⇒ Avg of cubes of first n natural no = $\frac{n(n+1)^2}{4}$

The average of four consecutive even numbers is 9. Find the largest number.

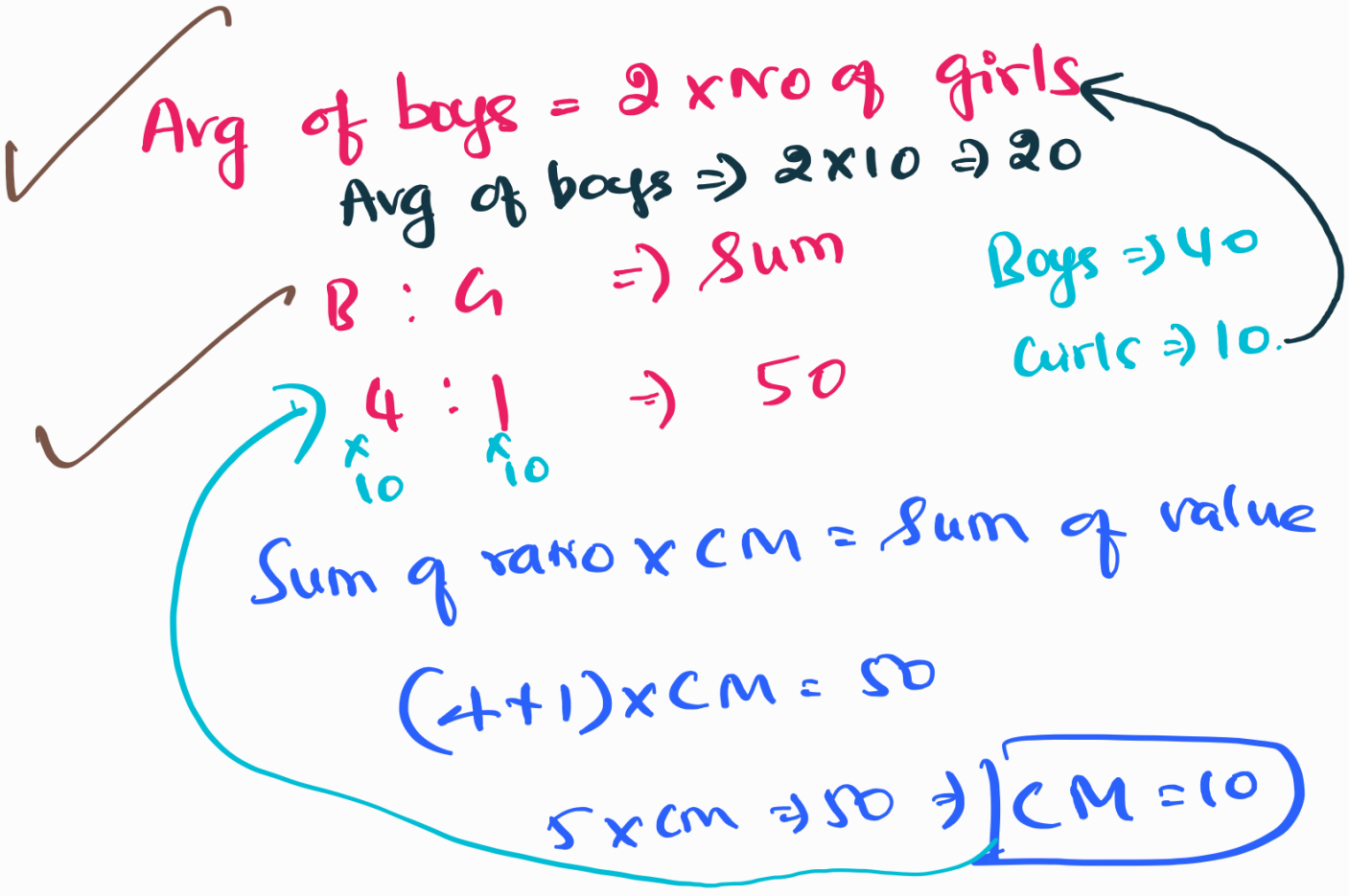


$\frac{6}{}, \frac{8}{}, \frac{10}{}, \frac{12}{11}$

9

$\frac{1, 2, 3, 4, 5}{\downarrow\downarrow \text{Avg}} \Rightarrow \frac{15}{5} \Rightarrow 3$

The average age of boys in the class is twice the number of girls in the class. The ratio of boys and girls in the class of 50 is 4 : 1. The total of the ages (in years) of the boys in the class is



Avg age of boys = 20.

No of boys = 40

$$\text{Avg} = \frac{\text{Total ages}}{\text{No of boys}}$$

Total ages = Avg x No of boys

= 20 x 40

Total = 800

The average height of 8 students is 152 cm. Two more students of heights 144 cm and 155 cm join the group. What is the new average height ?

$$\text{Avg} = \frac{\text{Sum of heights}}{\text{No of Students}}$$

$$\text{Sum} = \text{Avg} \times \text{No of Stu}$$

$$= 152 \times 8$$

$$\boxed{\text{Sum} = 1216}$$

Sum of 10 Stu height $= 1216 + 144 + 155$

$$\boxed{\text{Sum} = 1515}$$

$$\text{Avg} = \frac{\text{Sum of h of 10 Stu}}{10}$$

$$= \frac{1515}{10} = \boxed{151.5 \text{ cm}}$$

A boy found that the average of 20 numbers is 35 when he writes a number '61' instead of '16'. The correct average of 20 numbers is

$$\text{Avg } 20 \text{ nos} = \frac{\text{Sum of } 20 \text{ nos}}{20}$$

$$35 = \frac{\text{Sum}}{20} \Rightarrow \boxed{\text{Sum} = 700}$$

Sum of 20 nos = 700. ✗

Correct ⇒ 700 − 61 + 16

⇒ $\boxed{655}$ ⇒ Sum of 20 nos

$$\text{Avg} = \frac{\text{Sum}}{20}$$

$$= \frac{655}{20} = \frac{131}{4}$$

⇒ 4 | 131 = 32.75

⇒ $\boxed{32.75}$ ⇒ Avg