

7th Grade Lesson 55

- I can find the sum of a set of numbers when the average of the numbers is known.
- I can find a missing number in a set of numbers when the average of the numbers is known.



How do you find the average of a set of numbers?

$$\text{average} = \frac{\text{sum of the numbers}}{\text{how many numbers there are}}$$

13, 14, 15

$$\begin{aligned} \text{avg} &= \frac{13+14+15}{3} \\ &= \frac{42}{3} = 14 \end{aligned}$$

4, 8, 30

$$\begin{aligned} \text{avg} &= \frac{4+8+30}{3} \\ &= \frac{42}{3} = 14 \end{aligned}$$

14, 14, 14

1, 1, 40

$$\begin{aligned} \text{avg} &= \frac{1+1+40}{3} \\ &= \frac{42}{3} = 14 \end{aligned}$$

If we know the average of a group of numbers and how many numbers are in the group, we can determine the sum of the numbers.

The average of three numbers is 17. What is their sum?

$$\text{avg} = \frac{\text{sum}}{\text{how many}} \quad 17 \cdot 3$$

$$17 = \frac{\text{sum}}{3} \quad \text{sum} = 51$$

all the same number

Average tells us what the numbers would be if they were "equalized."

17, 17, 17

10, 20, 21
18, 30, 3

The average of four numbers is 25.

If three of the numbers are 16, 26, and 30, what is the fourth number?

$$\text{sum} = (\text{avg}) \cdot (\text{how many})$$

$$\text{avg} = \frac{\text{sum}}{\text{how many}}$$

$$30 + 26 + 16 = 72$$

$$\text{sum} = 25 \cdot 4 = 100$$

16, 26, 30, 28

$$\begin{array}{r} 100 \\ - 72 \\ \hline 28 \end{array}$$

I can find the sum of a set of numbers when the average of the numbers is known.

Ralph scored an average of 18 points in each of his first five games. Altogether, how many points did Ralph score in his first five games?

$$18 \cdot 5 = 90$$

I can find a missing number in a set of numbers when the average of the numbers is known.

The average of four numbers is 45. If three of the numbers are 24, 36, and 52, what is the fourth number?

$$\text{Sum} = 45 \cdot 4 = 180$$

$$24 + 36 + 52 = 112$$

$$\begin{array}{r} 180 \\ - 112 \\ \hline 68 \end{array}$$

68

Assignment:

Problem Set 55 #1-3, 5-6, 8, 12-13, 15,
17-18, 21-22, 30

