

HOW I TEACH WORD PROBLEMS IN A GRADE 9 CLASS

Wandile Hlaleleni

Butterworth High School

Learners perform poorly in word problems. I have spoken to more than fifty teachers of various education bands they all told me that their learners do not do well in word problems. The teachers attribute the poor performance to language, they claim that the learners are unable to translate the verbal representations of word problems to symbolic representation.

INTRODUCTION

I want to share an important teaching approach with teachers, that of using **strategic competence**. Strategic competence is one of the strands of mathematical proficiency and it simply means ability to formulate, present and solve mathematical problems. I use this approach when teaching word problems.

HOW DO I TEACH WORD PROBLEMS IN GRADE 9

I usually formulate, present and solve problems with learners. We (the learners and I) usually use the data from our context to formulate problems.

For instance, Sisanda is 15 years old and Lindiwe is 18 years old.

We compare the two ages and add them and use that to formulate the following problems.

Lindiwe is three years older than Sisanda. If the sum of their ages is thirty three years. How old is Sisanda?

Solution

(1) Take away more and bring back method (arithmetic method)

33 years – 3 years = 30 years

Since they are two divide 30 years by 2 years to get 15 years (30 years \div 2 = 15 years)

Sisanda is 15 years old. To get Lindiwe's age we add 3 years to Sisanda's age

(2) Algebraic method (symbolic)

Let Sisanda's age be represented by k and that means Lindiwe is $(k + 3)$ years old. This implies that $k + k + 3 = 33$

$$2k + 3 = 33$$

$$2k = 33 - 3$$

$$2k = 30$$

$$\text{So } k = 15$$

Sisanda is 15 years old.

We also formulated a second problem using the same data (their ages) . Since 18 years divided by 15 years give us 1,2 or $1\frac{1}{5}$ and we also observed that that in three years to come Lindiwe will be 21years old and Sisanda will be 18years old and 21years divided by 18years is equal to $1\frac{1}{6}$. We used the relationships as established above to formulate the following problem.

Lindiwe is $1\frac{1}{5}$ times as old as Sisanda . In three years to come Lindiwe will be $1\frac{1}{6}$ times as old as Sisanda. How old is Sisanda?

Solution

Let Sisanda's age be (d) years and that means Lindiwe's age is $\frac{6}{5}d$. (why?)

In 3 years to come Sisanda will be $(d + 3)$ and Lindiwe will be $\frac{6}{5}d + 3$

NB: $1\frac{1}{6}$ will be used to make the unequals equal ie to form an equation (why?)

$$\frac{7}{6}(d + 3) = \frac{6}{5}d + 3$$

$$\frac{7}{6}d + \frac{7}{2} = \frac{6}{5}d + 3$$

L.C.M. =30

$$30\left(\frac{7}{6}d\right) + 30\left(\frac{7}{2}\right) = 30\left(\frac{6}{5}d\right) + 30(3)$$

$$35d + 105 = 36d + 90$$

$$-d + 105 = 90$$

$$-d = -15$$

$$d = 15 \quad \text{Sisanda is 15 years old}$$

CONCLUSION

One can use any two ages to engage with problem formulation , presentation and solving. Other word problems could be formulated using money, numbers, measurements or any other interesting contexts.