

Grade 9 Mathematics Worksheet

Finance maths

Questions:

1. Daniel inherited an antique sword from his grandfather. The sword was manufactured in 1820. 63 years ago Daniel's grandfather bought it for R58. If the value of the sword doubles every 12 years, what will this sword be worth in 60 years' time? (Assume that it is 2009 now).

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Solution:

- In 2009 the sword is 189 years old. The value of the sword 63 years ago was R58, and this was in 1946. 60 from now, it will be 2069. The difference in years now is 123 years. If the sword doubles in value every 12 years, then this will be 10,25 periods. So then:

$$58(2)^{10,25} = R70629,39 \text{ is what it will be worth 60 years from now.}$$

OR

$$NewValue = InitialValue \times 2^{\frac{t}{T_D}} \text{ where } T_D = \frac{70}{p}$$

$$Now: NewValue = 58 \times 2^{\frac{123}{12}} = R70629,39$$

OR

$$\begin{aligned} NewValue &= InitialValue \left(1 + \frac{p}{100}\right)^t \\ &= 58(1+1)^{\frac{123}{12}} \\ &= R70629,39 \end{aligned}$$

This question does not have to be answered by using a formula. Learners can work with the doubling time intuitively.