Answer on Question #51037 – Math - Algebra

Question

The Meek brothers are planning a trip around the world. They hope to work some as they go, but believe that they should have accessible $800 per month so they can live in relative comfort for the year
they plan to be gone. How much should they have in an account earning 6% compounded monthly when they leave so that they can withdraw the desired $800 each month for twelve months?

Solution

Consider two cases.

The first case. Apply compound interest formula.

If they have *y* dollars in an account compounded monthly, then $y(1+0.06)^{12} \geq 800 \cdot 12$, hence $y \geq \frac{800 \cdot 12}{(1+0.06)^{12}}$, which is equivalent to $y \geq \$4771$ (in this case account can be used with deductions).

The second case. If Meek brothers want to have 800 dollars a month, then 800 dollars must be a 6% of sum in account.

Construct a proportion:

800 – 0.06

X – 1

$X = \frac{800}{0.06} = 13333.(33);$

So they should have at least $13 333.34 (in this case account can be used without deductions, all withdrawn money will be added by means of interest).