The skills in this series of worksheets appear frequently.

These are the GIFTS you must take to succeed

Recurrence Relations: Consecutive Terms

Given that $U_{n+1} = aU_n + b$ has the three terms shown, find a and b:

1. $U_1 = 5, U_2 = 7$ and $U_3 = 11$

2. $U_1 = 2, U_2 = 9$ and $U_3 = 16$

3. $U_1 = 4, U_2 = 8 \cdot 8$ and $U_3 = 9 \cdot 76$

4. $U_1 = 6, U_2 = 15$ and $U_3 = 21$

5. $U_1 = 10, U_2 = -24$ and $U_3 = -27 \cdot 4$

6. $U_1 = 2, U_2 = -2$ and $U_3 = 10$

7. $U_1 = 3, U_2 = 12$ and $U_3 = 48$

8. $U_1 = 2, U_2 = 0$ and $U_3 = 4$

9. $U_1 = 80, U_2 = 70$ and $U_3 = 62$

10. $U_1 = 5, U_2 = 13$ and $U_3 = 29$

APPLYING QUESTION

Mr King takes out a £200 loan on February 1ˢᵗ.

After making payments his balance is £183 on March 1ˢᵗ and £165·32 on April 1ˢᵗ.

(a)   By determining a recurrence relation in the form $U_{n+1} = aU_n + b$, state the monthly interest rate and his monthly repayment.

(b)   What date will he clear his loan and how much will his final payment be?