# Problem of the Week
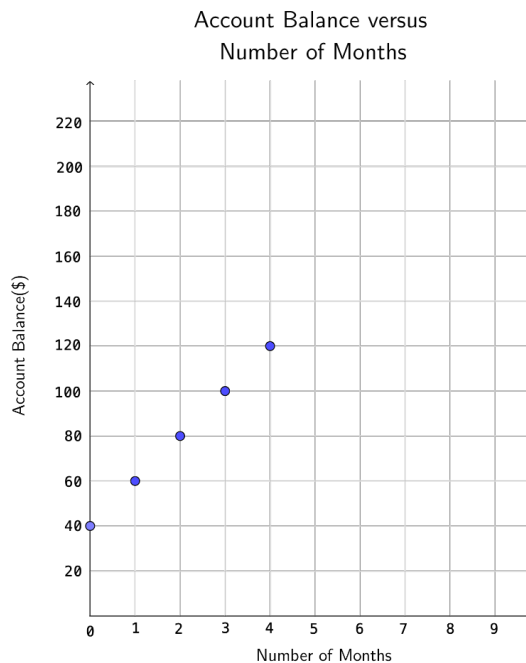## Problem B and Solution
## Banking on Amir

**Problem**

Amir's aunt wants to help him develop an education fund so that he can go to drumming school. He started a bank account with $40, and each month thereafter a $20 deposit is to be made.

The graph below shows how the bank account grows over time (with no interest).



(a) Create a table of values, listing the five ordered pairs of coordinates from the graph, as indicated by the dots.

(b) What is the pattern rule for the monthly account balance? Use your rule to add as many points to the graph as possible.

(c) How much will Amir have in his account after 6 months? Show on the graph how you got your answer.

(d) After how many months will Amir have $220 in his account? Show on the graph how you got your answer.

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## Solution

(a) A table of values, listing the five ordered pairs of coordinates from the graph, is below.

| Number of Months | Account Balance ($) |
| --- | --- |
| 0 | 40 |
| 1 | 60 |
| 2 | 80 |
| 3 | 100 |
| 4 | 120 |

(b) The pattern rule for the monthly account balance is "Start at 40 and add 20 each month". Using this pattern rule, we can complete the graph up to 9 months, as shown below.

Account Balance versus
Number of Months
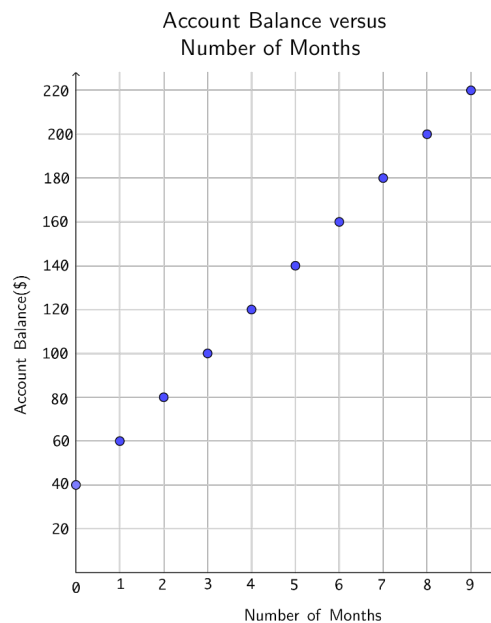


(c),(d)

For part (c), we start at $(6, 0)$ on the $x$-axis and move up to the (blue) dot, then left to the $y$-axis, which indicates $160, as shown by the green arrows (dashed lines) on the graph. Thus, Amir will have $160 in his account after 6 months.

For part (d), we start at $(220, 0)$ on the $y$-axis, and move to the right, reaching the (blue) dot, and then down to the $x$-axis, which indicates 9 months, as shown by the red arrows (dashed-dotted lines) on the graph. Thus, after 9 months, Amir will have $220 in his account.

Account Balance versus
Number of Months