



Problem of the Week

Problem A and Solution

Deciding About Data

Problem

The Webb family is trying to decide on a new monthly internet plan. There are three choices:

Plan A: \$10 for the first 10 GB of data, and each additional 2 GB costs \$5.

Plan B: \$40 for the first 20 GB of data, and each additional 10 GB costs \$10.

Plan C: \$80 for unlimited GB of data.

Note that for Plan A, additional data has to be purchased in 2 GB increments. Similarly, for Plan B, additional data has to be purchased in 10 GB increments.

After keeping track of data used, the family decides they will use between 25 GB and 40 GB of data each month. Which plan should the Webb family choose? Justify your answer.

Solution

One way to make a decision is to make a table showing how much each plan would cost for various amounts of data use.

Data Used (in GB)	Total Cost (in \$) for Plan A	Total Cost (in \$) for Plan B	Total Cost (in \$) for Plan C
10	10	40	80
12	15	40	80
14	20	40	80
16	25	40	80
18	30	40	80
20	35	40	80
22	40	50	80
24	45	50	80
26	50	50	80
28	55	50	80
30	60	50	80
32	65	60	80
34	70	60	80
36	75	60	80
38	80	60	80
40	85	60	80

Notice that at 25 GB, with Plan A they would need to get 26 GB of data. This would cost \$50. So, comparing the cost of the plans, we notice that Plan B is the lowest price from 25 GB to 40 GB. Therefore, the family should choose Plan B.

(Note that if the family uses less than 25 GB per month, then Plan A is better. Also, if they use more than 40 GB, then it looks like Plan B is better at first, but Plan C will eventually be better.)