Problem I
Capybara Petting Club

Time Limit: 2 seconds

The International Capybara Petting Club is preparing T-shirts for an event. There are four sizes, S, M, L, and XL, in increasing order. The numbers of T-shirts needed are n_{S}, n_{M}, n_{L}, and n_{XL}, respectively. At the standard color intensity, T-shirts of sizes S, M, L, and XL require B, Br, Br^2, and Br^3 units of dye, respectively.

The dyeing machine uses an integer intensity x. The minimum allowed color intensity is P, and $x = K$ is the standard intensity. Thus, x must satisfy $P \leq x \leq K$. If a T-shirt requires q units at the standard intensity, dyeing it at intensity x uses $\lceil qx/K \rceil$ units. All T-shirts must use the same intensity x.

Given A units of dye, find the maximum possible intensity x such that all T-shirts can be dyed without using more than A units. If no such x exists, output `-1`.

Input

The input contains T test cases. The first line contains an integer T ($1 \leq T \leq 100$), the number of test cases. Each test case consists of nine integers given in the following format:

$$n_{\mathrm{S}}\ n_{\mathrm{M}}\ n_{\mathrm{L}}\ n_{\mathrm{XL}}\ r\ A\ B\ P\ K$$

n_{S}, n_{M}, n_{L}, and n_{XL} denote the numbers of T-shirts of sizes S, M, L, and XL, respectively ($0 \leq n_{\mathrm{S}}, n_{\mathrm{M}}, n_{\mathrm{L}}, n_{\mathrm{XL}} \leq 10^5$ and $n_{\mathrm{S}} + n_{\mathrm{M}} + n_{\mathrm{L}} + n_{\mathrm{XL}} \geq 1$).
The value r denotes the factor by which the amount of dye required at the standard intensity increases with each increase in size ($1 \leq r \leq 10$).
A denotes the total amount of dye available, in units ($0 \leq A \leq 10^{15}$).
B denotes the amount of dye required to dye one size-S T-shirt at the standard intensity, in units ($1 \leq B \leq 10^6$).
P denotes the minimum allowed color intensity, and K denotes the standard color intensity ($1 \leq P \leq K \leq 10^9$).

Output

For each test case, output the maximum integer x such that $P \leq x \leq K$ and all T-shirts can be dyed using at most A units of dye. If no such integer exists, output `-1`.

Sample Input	Sample Output
3 1 1 1 1 2 15 2 1 12 2 0 1 0 3 8 2 4 10 0 0 0 1 10 1000 1 900000 999999	6 -1 999999