Problem DRESSFORSUCCESS: Dressed for success

James Bond was invited to a very exclusive party. He got very upset with the last Bond girl who served him a stirred martini, so he has to find a new girl to accompany him and be the next Bond girl. He asks his loyal housekeeper and friend May Maxwell to prepare a casting where the candidate girls will have the opportunity to spend some time with 007 himself. There is, obviously, a lot of interest among the local girls to participate and it is decided that they will be casted one at a time. On each candidate's turn, May, who knows James' taste to perfection, assigns the girl a score s (0 = No way of being chosen, 1 = The perfect Bond girl) and gives her a dress to put on and some make-up. She finally asks the candidate to say the most probable time t_d (in minutes) it is going to take her to get ready, because an old statistician friend of hers who has 12 sisters told her that the time t it takes to a woman to get ready follows a continuous Erlang-k distribution with parameters λ (rate) and k (shape), where both parameters are related by $t_d = \frac{k-1}{\lambda}$. The probability density function (*) for this distribution is given by

$$f(t, k, \lambda) = \frac{\lambda^k t^{k-1} e^{-\lambda t}}{(k-1)!}$$

You can assume that May can draw upon her friend to know the exact value of k for each girl, and that the score given by May is independent of t_d. We also know that James is very picky. He will refuse to accept a candidate if she takes less than t_{min} minutes to get ready, because he will think that she put too little effort in doing so. He will also refuse a girl who takes more than t_{max} minutes, because his time is precious. If a girl is on time, she will be picked with a probability given by her score. But if she is not on time, then she will not be picked, even if she is a perfect Bond girl.

(*) *If a random variable T follows a distribution with probability density function $f(x)$ then the probability $P(x \leq T < x+h)$ is given (approximately) by $f(x) \cdot h$, where h is an infinitesimally small positive number $(h \approx 0)$.*

Input

- A line containing two integers t_{min}, t_{max} $(5 \leq t_{min} < t_{max} \leq 60)$, the minimum and maximum time in minutes 007 expects a girl to take to be ready, respectively.
- A line containing an integer n $(1 \leq n \leq 25)$, the number of girls in the casting.
- Then follow $3n$ lines, where every line group corresponds to
  - A line containing a floating point number s $(0 \leq s \leq 1)$, the score for the girl.
  - A line containing an integer k $(k \in \{2, 3, 4, 5\})$, the Erlang-k distribution shape parameter.
  - A line containing an integer t_d $(15 \leq t_d \leq 50)$, the most probable time in minutes for the girl to get ready.

Output

Print on n separate lines the *individual* probability for each of the girls to be accepted as the next Bond girl, i.e., assuming that this probability is independent of James having seen any other candidate. Your answer should have an (either relative or absolute) precision of 10^{-6}.

Sample Input 1

```
10 45
4
0.342
5
32
0
3
47
0.9419
4
15
0.7
2
26
```

Sample Output 1

```
0.2231553
0
0.7873315
0.3211423
```