E. Delivering Carcinogen

Qwerty the Ranger arrived to the Diatar system with a very important task. He should deliver a special carcinogen for scientific research to planet Persephone. This is urgent, so Qwerty has to get to the planet as soon as possible. A lost day may fail negotiations as nobody is going to pay for an overdue carcinogen.

You can consider Qwerty's ship, the planet Persephone and the star Diatar points on a plane. Diatar is located in the origin of coordinate axes — at point $(0, 0)$. Persephone goes round Diatar along a circular orbit with radius R in the counter-clockwise direction at constant linear speed v_p (thus, for instance, a full circle around the star takes of time). At the initial moment of time Persephone is located at point (x_p, y_p).

At the initial moment of time Qwerty's ship is at point (x, y). Qwerty can move in any direction at speed of at most v $(v > v_p)$. The star Diatar is hot (as all stars), so Qwerty can't get too close to it. The ship's metal sheathing melts at distance r $(r < R)$ from the star.

Find the minimum time Qwerty needs to get the carcinogen to planet Persephone.

Input

The first line contains space-separated integers x_p, y_p and v_p ($-10^4 \leq x_p, y_p \leq 10^4$, $1 \leq v_p < 10^4$) — Persephone's initial position and the speed at which it goes round Diatar.

The second line contains space-separated integers x, y, v and r ($-10^4 \leq x, y \leq 10^4$, $1 < v \leq 10^4$, $1 \leq r \leq 10^4$) — The intial position of Qwerty's ship, its maximum speed and the minimum safe distance to star Diatar.

It is guaranteed that $r^2 < x^2 + y^2$, $r^2 < x_p^2 + y_p^2$ and $v_p < v$.

Output

Print a single real number — the minimum possible delivery time. The answer will be considered valid if its absolute or relative error does not exceed 10^{-6}.

Examples

input
```
10 0 1
-10 0 2 8
```

output
```
9.584544103
```

input
```
50 60 10
50 60 20 40
```

output
```
0.000000000
```