Coding Area

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Circular Tracks

Problem Description

There are two circular tracks (C1 and C2) on which two motorcyclists (m1 and m2) are moving with two different speeds (s1, s2 m/s) (+ve for clockwise movement and -ve for anti-clockwise movement)

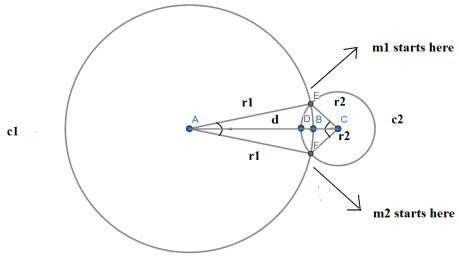
The radius of the tracks are r1 and r2 meters and d is the distance between their centers.

Your job is to compute if they will crash in given time t seconds, if m1 starts from E and m2 starts from F, where t is the time after which motorcycles will stop.

If yes, then find the time of the first crash and the collision point viz. {E, F}. If E and F coincide with each other, then consider first crash after 0 seconds.

For safety sake, if m1 and m2 reach the same point viz. {E, F} in the same second but a few milliseconds apart consider that as a crash. For example, if m1 crosses E at 5.66666231 second and m2 crosses E at 5.89544578 second, consider that both crash at the 5th second.

If there is no crash print 'no crash'.



Constraints

All the inputs are integers

Assume pi=3.141592653589793

Input

First line contains an integer r1, which represents radius of circular track C1 in meters

Second line contains an integer r2, which represents radius of circular track C2 in meters

Third line contains an integer s1, which represents the speed of m1 in m/s

Fourth line contains an integer s2, which represents the speed of m2 in m/s

Fifth line contains an integer t, which represents time in seconds after which the motorcycles will stop

Sixth line contains an integer d, which represents distance between the centers of circles C1 and C2

+

Output

One line containing the second at which the crash occurs along with the point at which the crash happens i.e. E or F, in the format,

<second of crash> <space> <E/F>. If crash happens at either E or F. For example, if the motorcycles crash at 10th second at point E, then print "10 E".

If the points E and F are coinciding then print "<second of crash> <space> <E&F>" (Refer Example 2).

If no crash happens then print "no crash".

+

Time Limit

1

+

Examples

Example1

Input

20

6

8

5

60

23

Output

47 E

Explanation

As per the inputs, circle1 (radius = 20 m, speed = 8m/s (clockwise)), circle2 (radius = 6 m, speed = 5 m/s (clockwise))

Time t after which motorcycles will stop = 60 sec.

Distance between the centers is 23 m.

m1 crosses E at 15.707963267948967, 31.415926535897935, **47.12388980384691** seconds respectively.

m2 crosses E at 2.2320236380400553, 9.77184600665556, 17.311668375271065, 24.85149074388657, 32.391313112502075, 39.93113548111758, **47.47095784973308**, 55.010780218348586 seconds respectively

m1 crosses F at 1.2143415782596505, 16.92230484620862, 32.63026811415759, 48.33823138210656 seconds respectively

m2 crosses F at 7.539822368615504, 15.079644737231009, 22.619467105846514, 30.159289474462017, 37.699111843077524, 45.23893421169303, 52.77875658030853 seconds respectively

From above we can see that both motorcycles m1 and m2 are at point E in the 47th second. Hence they are deemed to crash at 47th second. Hence the output is "47 E"

Example 2

Input

4

4

5

5

60

8

Output

5 E&F

Explanation

Since the difference between the centers is equal to r1+r2, hence the tracks will have only 1 common point.

Since both motorcycles pass at 5.026548245743669 second from the same common point, hence the output is "5 E&F"