|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Apples** | |  |  | | --- | --- | | Prob# | apples | | Author | Kuipers | | Date | 2002 | | From | USACO Fall, 2002 Green Competition | |

|  |
| --- |
| Problem apples: Apples [Kuipers, 2002]  When summer comes to the farm, it is time to harvest the cow's  favorite fruit, apples. At FJ's farm, they have an extraordinary  way of harvesting apples: Bessie shakes an apple tree, the apples  fall down and FJ tries to catch as many of the N (1 <= N <= 5,000)  apples as possible.  As an experienced apple catcher, FJ plots his apple catching  carefully. He knows exactly where (an X,Y coordinate where each of  X and Y is in the range -1,000..1,000) each apple will fall and  when (a time in the range 1 <= T <= 1,000,000). He walks to his  planned apple-catching spot so that he can catch the apple as it  falls.  FJ can walk S (1 <= S <= 1,000) units per unit of time. What is the  greatest number of apples he can catch if he starts at point (0,0)  at time 0? Note that FJ takes just over 1.41 units of time to walk  from (0,0) to (1,1) when walking at speed 1.  PROBLEM NAME: apples  INPUT FORMAT:  \* Line 1: Two space-separated integers: N and S  \* Lines 2..N+1: Line i+1 contains the cartesian coordinates and time  apple i lands with three space-separated integers: X\_i, Y\_i,  and T\_i  SAMPLE INPUT (file apples.in):  5 3  0 0 1  0 3 2  -5 12 6  -1 0 3  -1 1 2  OUTPUT FORMAT:  \* Line 1: A file with a single line containing an integer that is the  largest possible number of apples that FJ can catch.  SAMPLE OUTPUT (file apples.out):  3  OUTPUT DETAILS:  FJ can catch apples 1, 5 and 4. |

[USACO Gateway](http://ace.delos.com/upload4?init=1&a=qakjlkqPx8q)  |  [Comment or Question](mailto:kolstad@ace.delos.com)