/* Problem 4--I Shot An Arrow
I imagine that this will turn out to have been the hardest problem in
the contest. Even with command of trigonometry, solving the equation
is not necessarily easy. */

import java.io.*;
import java.util.*;

public class prob4 {
    private static Scanner in = null;
    private static PrintWriter out = null;
    private static int cs = 0;

    public static void main(String[] args) throws Exception {
        in = new Scanner (new File("prob4.in"));
        out = new PrintWriter("prob4.out");
        while (in.hasNextInt ()) { //read in data
            int px = in.nextInt (), py = in.nextInt (), pv = in.nextInt (),
            pth = in.nextInt (),
            ax = in.nextInt (), ay = in.nextInt ();
            Process (px,py,pv,pth,ax,ay);
        }
        in.close ();
        out.close ();
    }

    /* Process computes the answer for the input. It uses binary search
to solve equations that are nasty hard algebraically. */
    public static void Process (int px, int py, int pv, int pth,
                             int ax, int ay) throws Exception {
        //Equations are:
        //ax + 200 t cos at = px + pv t cos pth
        //ay + 200 t sin at = py + pv t sin pth
        double maxtime = Math.sqrt ((px-ax)* (px-ax)+(py-ay)* (py-ay))/100;
        double l = 0, h = maxtime, t = 0, x = 0, y = 0;
        //solving for t which must fall between 0 and maxtime.
        while (true) {
            t = (l+h)/2;
            x = px+pv*t*Math.cos (pth*Math.PI/180); //where does the player move
            y = py+pv*t*Math.sin (pth*Math.PI/180); //in this time
            double at = Math.atan2 ((x-ax)*(x-ax)+(y-ay)*(y-ay))/200;
            if (Math.abs(t-at)<le-8) break; //how long will it take the arrow to
            if (at < t) h = t; //move there. Which gets there first?
            else l = t;
        }
        double aa = Math.atan2 (y-ay,x-ax)*180/Math.PI; //compute angle from
        if (aa < 0) aa += 360; //intersection point
        double ha = Math.atan (0.08*t)*180/Math.PI; //compute vertical angle
        out.printf("Case %d: Katniss fires at a horizontal angle of %.1f "+
                   "degrees and a vertical angle of %.1f degrees.\r\n", cs,aa,ha);
    }

}