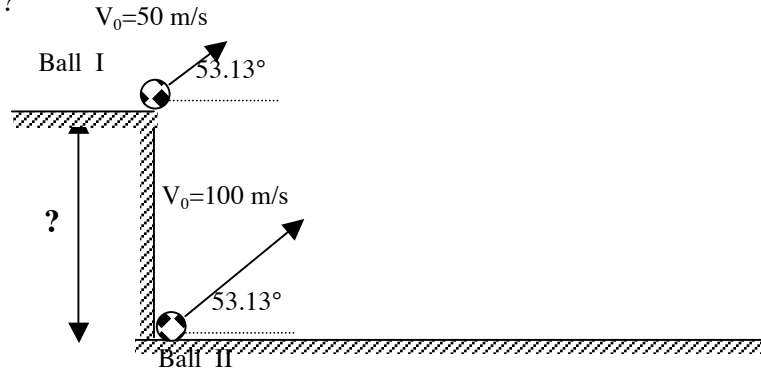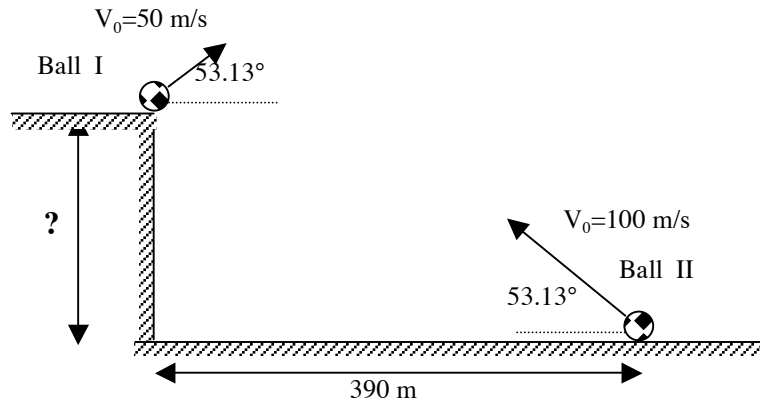# PROJECTILES 4
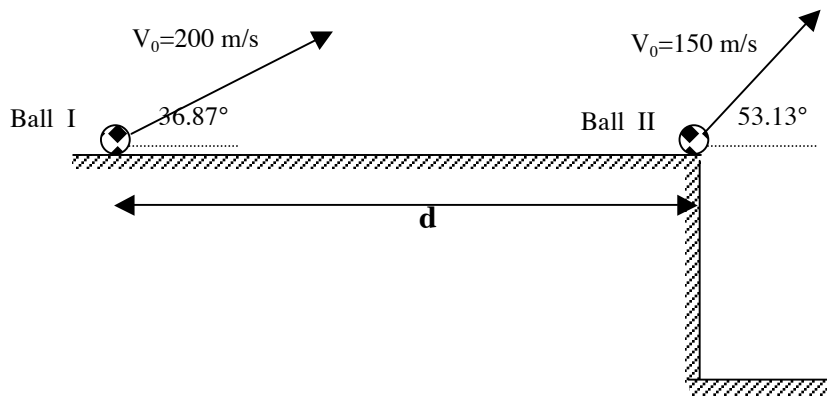
1] The two balls will collide in mid air if ball II is shot 3 seconds after ball I. What is the height of the cliff?

$V_0 = 50$ m/s

Ball I
53.13°

$V_0 = 100$ m/s

?

53.13°

Ball II

2] The two balls will collide in mid air if ball II is shot 5 seconds prior to ball I. What is the height of the cliff?

$V_0 = 50$ m/s
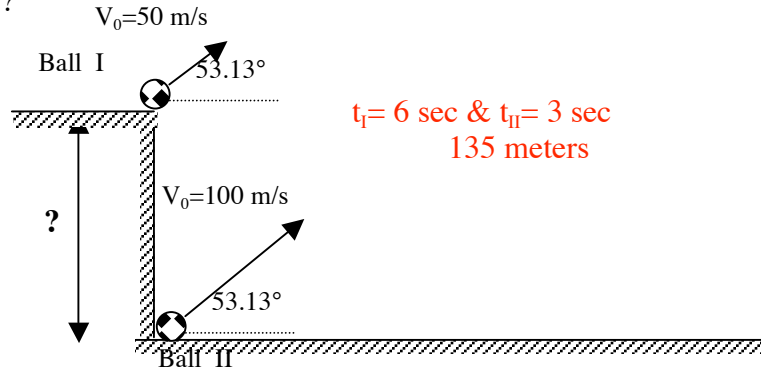
Ball I
53.13°

?

$V_0 = 100$ m/s

Ball II

53.13°

390 m

3] Both balls are shot at the same time. (a) If the balls collide when both are at their peaks, what is distance d? (b) If both balls strike the ground at the same time, what is the maximum distance for d?

$V_0 = 200$ m/s

Ball I
36.87°

$V_0 = 150$ m/s

Ball II
53.13°

d

PROJECTILES 4 - KEY

1] The two balls will collide in mid air if ball II is shot 3 seconds after ball I. What is the height of the cliff?

V_0=50 m/s

Ball I

53.13°

t_I= 6 sec & t_{II}= 3 sec
135 meters

V_0=100 m/s

?

53.13°

Ball II

2] The two balls will collide in mid air if ball II is shot 5 seconds prior to ball I. What is the height of the cliff?

V_0=50 m/s

Ball I

53.13°

t_I= 1 sec & t_{II}= 6 sec
265 meters

V_0=100 m/s

Ball II

53.13°

?

390 m

3] Both balls are shot at the same time. (a) If the balls collide when both are at their peaks, what is distance d? (b) If both balls strike the ground at the same time, what is the maximum distance for d?
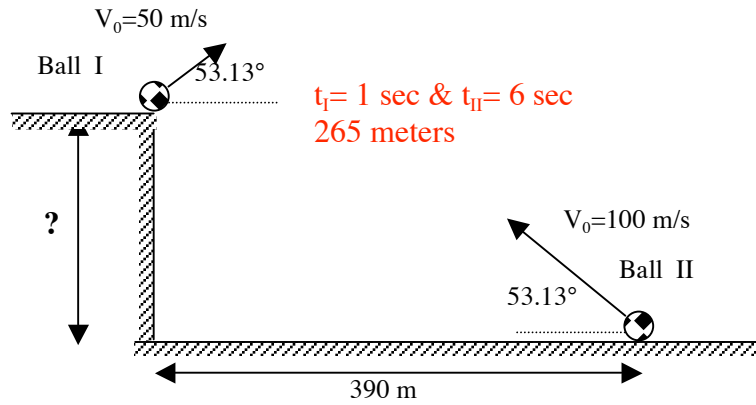
V_0=200 m/s

Ball I

36.87°

V_0=150 m/s

Ball II

53.13°

(a) 840 m
(b) 3,840 m

d