Projectiles [Linear Motion]
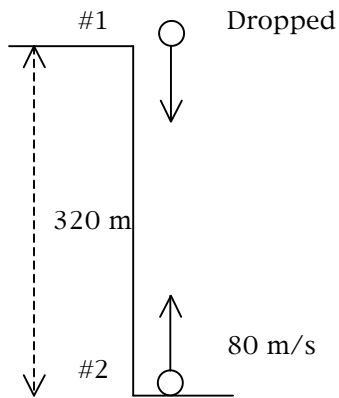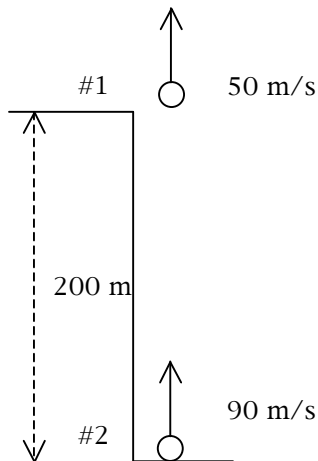
1] Ball #1 is dropped just as ball #2 is thrown upward at 80 m/s. When and where do the two ball collide?

#1   ○   Dropped

320 m

80 m/s

#2

2] Ball #1 is thrown upward at 50 m/s just as ball #2 is thrown upward at 90 m/s. When and where do the two ball collide?
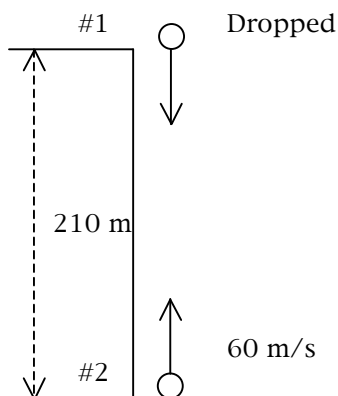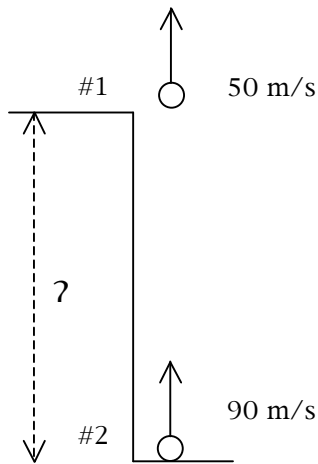
50 m/s

#1   ○

200 m

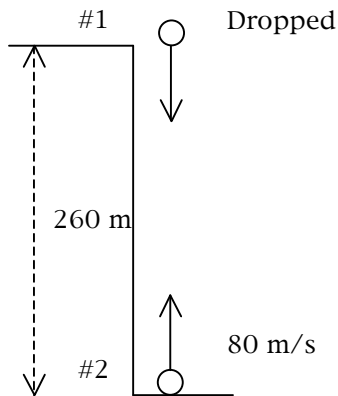90 m/s

#2

3] Ball #1 is dropped just as ball #2 is thrown upward at 60 m/s. When and where do the two ball collide?
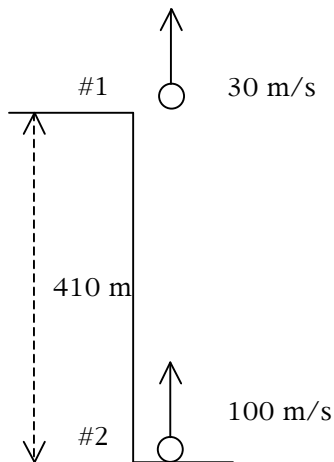
#1   ○   Dropped

210 m

60 m/s

#2

4] Ball #1 is thrown upward at 50 m/s just as ball #2 is thrown upward at 90 m/s. The two collide 4 seconds later, how tall is the cliff?

#1   ◯   50 m/s

?

90 m/s
#2   ◯

5] If you wanted ball #1 and ball #2 to collide at a point 240 m above the base of the cliff, when should ball #2 be thrown?

#1   ◯   Dropped

260 m

80 m/s
#2   ◯

6] Ball #1 is thrown upward at 30 m/s, two seconds later ball #2 is thrown upward at 100 m/s. When and where do the two ball collide?

#1   ◯   30 m/s

410 m

100 m/s
#2   ◯

W1.13-H KEY

1. 4 sec, 240 m above the base
2. 5 sec, 325 m above the base
3. 3.5 sec, 148.75 m above the base
4. 160 m
5. 2 sec before or 10 sec before ball 1 is dropped
6. 5 sec, 375 m above the base