**6C Angled Projections**

1. A particle P is projected from a point O on a horizontal plane with speed 28ms-1, and with angle of elevation 30°. After projection, the particle moves freely under gravity until it strikes the plane at a point A.

Find:

1. The greatest height above the plane reached by P
2. The time of flight of P
3. The distance OA
4. A particle is projected from a point O with speed Vms-1 at an angle of elevation θ, where tanθ = 4/3. The point O is 42.5m above the horizontal plane. The particle strikes the plane 5 seconds after it is projected.
5. Show that V = 20ms-1
6. Find the distance between O and A
7. A particle is projected from a point O with speed 35ms-1 at an angle of elevation of 30°. The particle moves freely under gravity.

Find the length of time for which the particle is 15m or more above O

1. A ball is struck by a racket at a point A which is 2m above horizontal ground. Immediately after being struck, the ball has velocity (5**i** + 8**j**) ms-1, where **i** and **j** are unit vectors horizontally and vertically respectively.

After being struck, the ball travels freely under gravity until is strikes the ground at a point B, as shown. Find:

1. The greatest height above ground reached by the ball
2. The speed of the ball as it reaches B
3. The angle the velocity of the ball makes with the ground as the ball reaches B