



The height of H is around 200 which is calculated using below procedure.

The given green line is the horizon line, which means that it's the 2D projection of a real-world 3D horizontal plane. The floor is parallel to this horizontal plane. This means that every point on the floor is at the same (minimum) distance from the green line (in world coordinates).

Now, for the height of any person, we can use the given arrows. As for a single arrow, all points will have same  $x$  and  $z$  coordinates. And their projection on image plane will be  $(x_1, c.y/z)$ . So the number of pixel in an arrow is directly proportional to their height (given  $z$  is constant for the whole arrow).

Now the y-pixel location of (A,B,C,D,E,F) is (431,580,685,216,580,795).

Given the height of R is 180 cm.

So

$$(\text{pixels in BC})/(\text{pixels in AC}) = (\text{real height of BC})/(\text{Real height of AC})$$

$$\text{So real height of BC} = (105 * 180)/255$$

And this height will be the same for EF (as C and F both are on floor).

Now for H,

$$(\text{pixels in EF})/(\text{pixels in DF}) = (\text{real height of EF})/(\text{Real height of DF})$$

$$\text{So, real height of DF} = 580 * ((105 * 180)/255) / 215$$

$$= 199.94$$

$$= 200 \text{ (approx)}$$