two persons in the field who are 120 metres apart. one of them kicks the ball at a speed of 30m/s at an angle of 38 degrees. what is the velocity the second person should use in order to find the ball when it's just meeting the ground.

Time of falling for the ball:

$$-v\sin a = v\sin a - gt \quad => \quad t = \frac{2v\sin a}{g}$$

The ball falls on the ground at distance:

$d_1 = \frac{v^2\sin(2\alpha)}{g}$ from the first person.

Therefore, distance to the second person equals:

$$d_2 = d - d_1 = d - \frac{v^2\sin(2\alpha)}{g}$$

Therefore, velocity of the second person equals:

$$u = \frac{\left(d - \frac{v^2\sin(2\alpha)}{g}\right)}{\frac{2v\sin a}{g}} = 8.2\ m/s$$

Answer: $u = 8.2\ m/s$