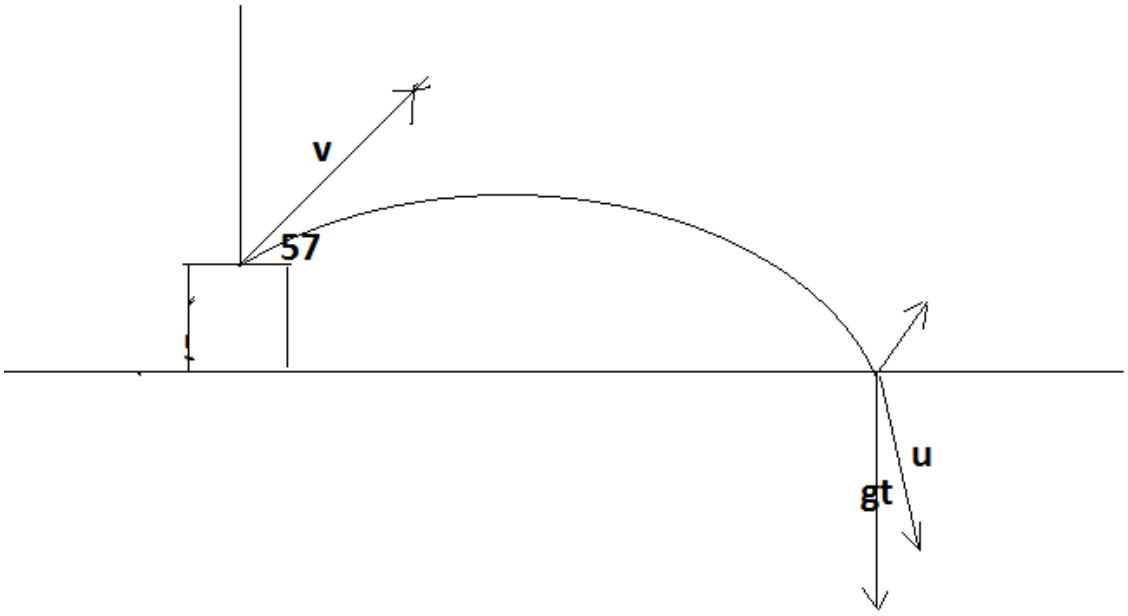
A nine-iron is used to pitch the ball up to a green that lies 8.23 meters above the fairway. If the ball's take-off velocity was 22 meters per second at an angle of 57 degrees above horizontal. (6 marks)
a) What is the range of the shot?
b) What is the final vertical velocity of the ball upon landing?
c) What is the resultant velocity of the ball upon landing?



By theorem of cos

u^2=$(gt)^2 + 22^2 - 2\cos 33 * gt * 22$

When cos 33=gt/u

Then resulting speed is horizontal

t=1.9sec - and ball is in max point of trajectory

t=3.8 sec – at height of 8.23 above the finish

then g*3.8t+gt^2/2=8.23

t=0.8 sec

b) What is the final vertical velocity of the ball upon landing?
u^2=$(gt)^2 + 22^2 - 2\cos 33 * gt * 22$

(we must place here t=3.8+0.8)

c) What is the resultant velocity of the ball upon landing?

u^2=$(gt)^2 + 22^2 - 2\cos 33 * gt * 22$

(we must place here t=3.8+0.8)

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