Tuesday Horizontal Projectile Solutions

1. (2h/a)1/2 = t = (30\*2/9.8)1/2 = t = 2.47 s

Vf = vo + at = 2.47)(-9.8) = -24.2 m/s

X = vt = 12.0 m/s )(2.47 s) = 29.6 m

1. Car on cliff (2\*54/9.8)1/2 = 3.32 s

V = Δx/t = 130 m/3.32 s = 39.2 m/s

1. From Horizontal data v = Δx/t so t = Δx/v = 36 m/22.2 m/s= 1.62 s

H = ½ at2 = ½ (9.8)(1.62)2 = 12.9 m

1. Pool t = (2h/a)1/2 = [2(6.5)/9.8)]1/2 = 1.15 s

V = Δx/t = 12 m/1.15 s = 10.4 m/s required. Rory can only run 6 m/s so he will not make it to the pool.