1. **A place kicker kicks a football with a velocity of 20.0 m/s and at an angle of 53 degrees.**

   (a) How long is the ball in the air?

   (b) How high does it travel?

   (c) How far away does it land?

The horizontal component of velocity=	=0
The vertical component of velocity=	$v_{fy}^2 = v_{iy}^2 - 2 \times 9.8\ y_{max}$
The vertical component of velocity at the maximum height=	$v_{iy} = v_i \sin\theta$
To find the maximum height use	$v_{ix} = v_i \cos\theta$
To find the time to reach the maximum height use	$V_{fy} = v_i \sin\theta - 9.8t$
The hang time (time in air)=	$\Delta x = (v_i \cos\theta)(2t)$
To find how far it will land use	$= 2t$