UNIT 3 EXERCISES

1) A toy rocket is aimed at an angle of 12° above the horizontal. It is given an initial velocity of 10m/s.

a) What is the maximum vertical height it will reach? Show your work.

b) What will be the time interval from its release to the time it hits the ground? Explain.

c) How far will it be from its initial position when it hits the ground? Show your work and explain.

2) Refer to the example problem Unit 3 Reading B:

The Texas A&M – Texas Tech football game is tied and only enough time remains on the clock for one last field goal attempt by the Red Raiders. The ball will be kicked from the 45-yard (41m) line. The cross bar of the goal post is 10ft (3.0m) high and lies 10 yards (9.1m) behind the goal line. If the ball leaves the kicker's foot at an angle of 33^{o} to the ground, what initial velocity is required in order for Tech to win the ball game? Show your work.

Now find the time the football is in the air, from the time it left the ground to when it lands on the ground, and the final velocity of the football when it hits the ground.

3) An eagle is flying horizontally at a speed of 3.00m/s when the fish in her talons wiggles loose and falls into the lake 5.00m below. Calculate the velocity of the fish when it hits the water.