8A Constructing Models

1. The motion of a basketball as it leaves a player's hand and passes through the net can be modelled using the equation $h = 2 + 1.1x - 0.1x^2$, where h is the height of the ball above the ground, and x is the horizontal distance travelled (both in metres).

a) Find the height of the basketball;

i)   When it is first released

ii)   After it has travelled a horizontal distance of 0.5m

b) Use the model to predict the height of the basketball when it is at a horizontal distance of 15m from the player

c) Comment on the validity of this prediction