2.12.15

You are trying to dunk a basketball. You need to jump 2.5 ft. in the air to dunk the ball. The hei
that your feet are above the ground is given by the function $h(t) = -16t^2 + 12t$.

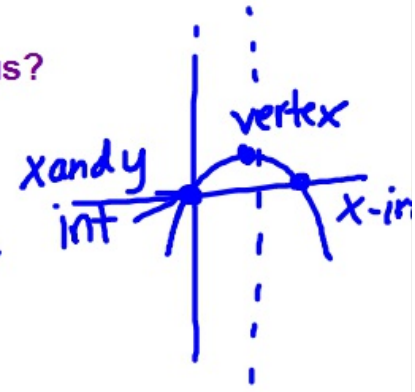
(a) What is the y-intercept? What does it tell us?

(0,0) I am jumping from the ground.

(b) What are the x-intercepts? What do they tell us?

(0,0) (0.75,0)

After 0.75 min we are back on the ground.



(c) What is the vertex? What does it tell us?

(0.375, 2.25) $x = \frac{-b}{2a}$ $a = -16$ $b = 12$ $c = 0$

$x = \frac{-12}{2(-16)}$ $x = \frac{12}{32}$ $x = \frac{3}{8}$

$y = -16(0.375)^2 + 12(0.375)$

$y = 2.25$

We reach our maximum height of 2.25 feet at 0.375 min. This is not high enough to dunk the ball.