

The ball hits the ground when the height is 0. So $0 = -16t^2 + 144$. Dividing by 16 gives $0 = -t^2 + 9$. Using the Quadratic Formula:

$$t = \frac{-0 \pm \sqrt{0^2 - 4(-1)(9)}}{2(-1)} = \frac{\pm\sqrt{36}}{-2} = \frac{\pm 6}{-2} = \pm 3$$

The negative answer does not make sense. The ball hits the ground after 3 seconds.