When an object is dropped from a great height gravity causes the object to speed up as it falls. When the object strikes the surface, the velocity at which the object was traveling at the moment of impact (ignoring air resistance) can be determined using the formula $v = \sqrt{2gh}$, where v represents the object's velocity (in feet per second), g is the object's acceleration due to gravity (in feet per second per second), and h is the height of the object (in feet). On Earth, an object's acceleration due to gravity is 32 ft/s^2. From what height must a stone be dropped to reach a velocity of 128 ft/s at the moment it hits the ground?

The time it takes an object to fall from a great height depends on the object's acceleration due to gravity, as well as the height from which the object is dropped.

$$h = \frac{1}{2}gt^2$$

The formula can be used to describe this relationship, with t representing time (in seconds), h representing the height of the object (in feet), and g representing the object's acceleration due to gravity, which is 32 ft/s^2. If a cliff diver leaps into the water from a height of 164 feet, how long will it take him to reach the water? Assume that air resistance is negligible and does not have an effect.