While we might be tempted to drop the negative root, let’s keep it as it will help in checking the solution.

b. With what speed does the stone hit the ground.

Find: $V_f$ on hitting the ground

With $t = -3.00 s$

$V_f = V_0 + at$

$= (12.0 \, \text{m/s}) + (-9.8 \, \text{m/s}^2)(-3.00 \, \text{s})$

$= 41.4 \, \text{m/s}$

With $t = 5.45 s$, $V_f = -41.4 \, \text{m/s}$. The velocity here is negative, because it is downward. Note that for $t = -3.00 s$, we get an upward velocity of the same magnitude. This is what we would expect if the package had been thrown upward from ground level.