Answer on Question # 57214 – Physics – Mechanics | Relativity

A car is traveling at 100 m/s. A deer is 150 m in front of the car and does not move. The car decelerates at 20 m/s^2. How far does the car travel before it stops?

Solution:

The moment of time, when the car stops, is the moment when the velocity of the car becomes zero:

$$t = \frac{v}{a} = \frac{100}{20} = 5[s].$$

The distance traveled by the car before the stop can be found from the equation of motion:

$$S = vt + \frac{at^2}{2} = 100 \times 5 - \frac{20 \times 5^2}{2} = 250[m].$$

Answer: 250 m.