Answer on 39692, Physics, Mechanics | Kinematics | Dynamics
If we have the law for velocity, we have to integrate it with respect to t to get the low motion, that is instantaneous position of the car as a function of time. So we have

$$s(t) = \int v(t)dt = -6t^2 + 12t + C$$

where C is integration constant, which can be find from given condition $s(0) = 5$. We see that

$$s(0) = -6 \cdot 0^2 + 12 \cdot 0 + C = 5$$

$$C = 5$$

Hence, instantaneous position of the car as a function of time is

$$s(t) = -6t^2 + 12t + 5$$

To find acceleration, we have to differentiate the velocity with respect to t

$$a(t) = \frac{d}{dt}v(t) = -12$$

Hence, acceleration and $t = 2$ seconds is -12 m/s^2.