Answer on Question #48632, Physics, Mechanics | Kinematics | Dynamics

Two cars X and Y are travelled in the same direction with velocity V1 and V2 (V1> V2). When the car X is at a distance S behind the car Y, the car X starts deaccelaration with a. To avoid the collision.....

Solution:

The relative velocity of car X is $v_1 - v_2$.

The kinematic equation that describes an object's motion is:

$$d = \frac{(v_1 - v_2)^2}{2a}$$

The symbol *d* stands for the distance that will cover car X to reach car Y.

To avoid the collision

$$S \geq d$$

Answer: $S \geq \frac{(v_1 - v_2)^2}{2a}$