

Answer on Question #68270 - Physics / Mechanics | Relativity

Two cars X and Y travelling in opposite directions along the same high way at uniform velocities 110 kmh^{-1} and 90 kmh^{-1} respectively pass each other at a certain point. The velocity of X relative to Y at the time they pass each other is.

Solution:

The velocity of X relative to Y

$$v = 110 \frac{\text{km}}{\text{hr}} + 90 \frac{\text{km}}{\text{hr}} = 200 \frac{\text{km}}{\text{hr}}.$$

Let the lengths of car X and Y are l_x and l_y respectively. Then time they pass each other is

$$t = \frac{l_x + l_y}{v}.$$

Answer: $200 \frac{\text{km}}{\text{hr}}$.

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