Answer on Question #50625 – Math – Algebra

Question

At 11 A.M. two trucks start traveling toward each other at average rates of 51 and 58 kilometers per hour. At the beginning of their trip they were 580 km apart. How long will it take until the trucks pass each other? Round-off your answer to one decimal place.

Given:

$v_1 = 51\ \frac{km}{hr}$

$v_2 = 58\ \frac{km}{hr}$

$L = 580\ km$

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Find:

$t = ?$

Solution

Trucks travel toward each other, so the total velocity is given by

$$v = v_1 + v_2 = 109\ \frac{km}{hr}$$

So, we can imagine that the first truck moves with the total velocity, while second is at rest. Therefore,

$$L = vt$$

So,

$t = \frac{L}{v} = \frac{580}{109} \approx 5.3\ hr = \left(5 + \frac{3}{10}\right) hr = 5\ hr\ 18\ min.$

Evaluate 11 *hr*+5 *hr*+18 *min*=16 *hr* 18 *min*

Thus, the trucks will pass each other at 4:18 p.m. (that is 16:18)

Answer: $5.3\ hr.$