

2-6-3

10/1/22

Isaac Abella

P: what's the relative velocity of the Walmart truck with respect of the FedEx truck?

O: Walmart = 62 mph, 50 ft.

Fedex = 52 mph, 47 ft.

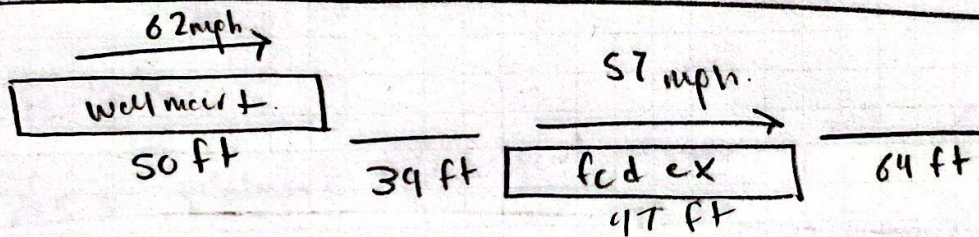
Pass₁ = 34 ft $V_{w/f} = \frac{w}{g} - \frac{f}{g}$

Pass₂ = 64 ft. $V = \frac{\Delta S}{\Delta t}$

Solution: solve for relative velocity by taking $\frac{\text{walmart}}{\text{fedex}} = \text{walmart} + \text{fedex}$

$$62 \text{ mph} - 52 \text{ mph}$$

Visualize



Calculate:

$$62 - 52 \text{ mph} = 10 \text{ mph}$$

Velocity of $w/\text{ground} - f/\text{ground}$.

2-6-3

10/12/22

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P: What is the pass length or relative displacement during the pass of the Walmart truck with respect to the ground?

O:
 Walmart = 62 mph, 50 ft.
 Fedex = 52 mph, 47 ft.
 Pass = 39 ft
 Pass₂ = 64 ft

$$\text{Pass } \Delta s = \text{Walmart} - w - F + F$$

$$v_{w/F} = w/g - w/f$$

$$v = \frac{\Delta s}{\Delta t}$$

Solution.

To find change in displacement, subtract Walmart's length by the pass lengths and Fedex length differences in distance Δ .

Calculate.

$$\Delta s = \text{Walmart} + (\text{Walmart} - \text{Fedex}) + \text{Fedex} + (\text{Fedex} - \text{Walmart})$$

$$50 + 39 + 47 + 64 = \boxed{199 \text{ ft.}}$$

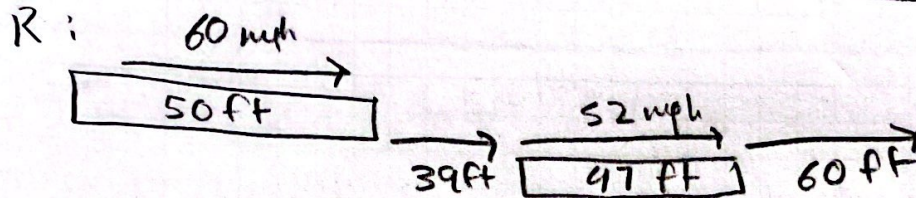
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10/2/22

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P: How long does it take the Walmart truck to pass the Fedex truck?

O:
 $W = 60 \text{ mph}, 50 \text{ ft}$
 $F = 52 \text{ mph}, 47 \text{ ft}$
 $\text{Pass}_1 = 39 \text{ ft}$ $\text{Pass}_2 = 60 \text{ ft}$



Solution:

$$\frac{\text{total displacement}}{\text{time}}$$

Calculate:

$$\frac{200 \text{ ft}}{10} = \boxed{20 \text{ seconds}}$$

IV check

• relative velocity of the Walmart truck in respect to the fedex truck?

$$V_{W/F} = \frac{62 \text{ mph}}{50 \text{ ft}} + \frac{52 \text{ mph}}{47 \text{ ft}} = \frac{10}{\text{mph}} = 14.7 \text{ ft/s}$$

• displacement:

200 ft.

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10/2/22

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P: How far does the Walmart truck travel while passing the Fedex truck?

O: total time to use = 13.6 seconds.
displacement = 200 ft.

Solution set total distance = to Walmart's velocity with respect to ground multiplied by our total time in C.

Calculate:

$$\frac{60 \text{ mph}}{1} \cdot \frac{1 \text{ hr}}{3600 \text{ s}} \cdot \frac{5280 \text{ ft}}{1} = 90.9$$
$$13.6 \text{ second} \cdot 90.9 \text{ ft/s}$$

$$= 1236.24 \text{ ft.}$$