

REMEMBER  
 $\checkmark$   $\leftarrow$  SLOPE =  $a$   $\rightarrow$  00 REQUIRES UNBALANCED F  
 $t$

5. These graphs describe the motion of Carson Busses at various times during his trip to school. Indicate whether Carson's vehicle is being acted upon by an unbalanced force. Give a reason in terms of a description of what the car is doing (speeding up, slowing down, or constant velocity).

<p>Velocity</p> <p>Time</p> <p><math>a=0</math></p>	<p>Velocity</p> <p>Time</p> <p>SLOPE = <math>a</math> (slowing down)</p>	<p>Velocity</p> <p>Time</p> <p>SLOPE = <math>a</math> (speeding up)</p>
<p>Unbalanced Force? Yes or No? <u>No</u></p> <p>Reason/Description: <u>NOT ACCEL.</u></p>	<p>Unbalanced Force? Yes or No? <u>Yes</u></p> <p>Reason/Description: <u>ACCEL.</u></p>	<p>Unbalanced Force? Yes or No? <u>Yes</u></p> <p>Reason/Description: <u>ACCEL.</u></p>

6. A free-body diagrams show all the individual forces acting upon an object. The net force is the vector sum of all these forces ( $\Sigma F$ ). Determine the net force and state if there is an acceleration.

a.  $\Sigma F = 10 \text{ N, LEFT}$   
 Accel'n? Yes or No

b.  $\Sigma F = 0$   
 Accel'n? Yes or No

c.  $\Sigma F = 15 \text{ N, UP}$   
 Accel'n? Yes or No

7. During an in-class discussion, Anna Litlial suggests to her lab partner that the dot diagram for the motion of the object in #6b could be

Anna's partner objects, arguing that the object in #6b could not have any horizontal motion if there are only vertical forces acting upon it. Who is right? ANNA Explain.

The spacing is constant, so acceleration is zero which could be either at rest or moving at const. velocity

8. During an in-class discussion, Aaron Agin asserts that the object in #6a must be moving to the left since the only horizontal force acting upon it is a "left-ward" force. Is he right? NO Explain.

No, the net force is not always in the same direction of the motion. A "left-ward" force like friction could be working on it causing it could be slowing down, but still moving forward.

9. The diagrams below depict the magnitude and direction of the individual forces acting upon an object. Which objects could be moving to the right? Circle all that apply.

ALL OF THEM!

A and B could be moving at a constant velocity to the right since it has balanced forces  
 C, D, and E would be accelerating, since they have unbalanced forces. but still could be moving to the right.

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A and B could be moving at a constant velocity to the right since it has balanced forces

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C, D, and E would be accelerating, since they have unbalanced forces, but still could be moving to the right.