

1

A car is driving on a highway. The car's speed (in miles per hour) and the car's direction are given by the vector  $\langle 64.87, 65.33 \rangle$ . How fast is the car moving?

- A) 64.87 mph
- B) 65.33 mph
- C) 67.12 mph
- D) 68.91 mph
- E) 70.00 mph

4

A hockey player passes the puck to the left of the net. The puck's velocity is given by the vector  $\langle 129.05, 184.31 \rangle$ . How far does the puck travel towards the net?

- A)  $\langle 129.05, 184.31 \rangle$
- B)  $\langle 184.31, 129.05 \rangle$
- C)  $\langle 143.39, 204.79 \rangle$
- D)  $\langle 203.92, 95.09 \rangle$
- E)  $\langle 95.09, 203.92 \rangle$

7

Jaxson is canoeing across a river at 2 miles per hour. If the river's current is given by the vector  $\langle 4.5, 0 \rangle$ , what is his resultant direction as a vector in component form?

- A)  $\langle 4.5, 0 \rangle$
- B)  $\langle -1, -4.5 \rangle$
- C)  $\langle -4.5, 0 \rangle$
- D)  $\langle -4.5, -2 \rangle$
- E)  $\langle -2, -4.5 \rangle$

10



Two trucks are pulling a tractor stuck in the mud. Truck A pulls with a force of 1500 pounds in the  $N 45^\circ W$  direction. Truck B pulls with a force of 1800 pounds in the  $N 45^\circ E$  direction. Find the magnitude of the resultant force on the tractor to the nearest pound.

- A) 2,343 lbs
  - B) 2,395 lbs
  - C) 2,487 lbs
  - D) 2,561 lbs
  - E) 2,604 lbs
- won the lottery  
were on vacation  
were dared to do it  
were raising money  
were on a date

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# VECTOR APPLICATIONS

*(Velocity & Force)*

## MATH LIB ACTIVITY

Created by: ALL THINGS ALGEBRA®

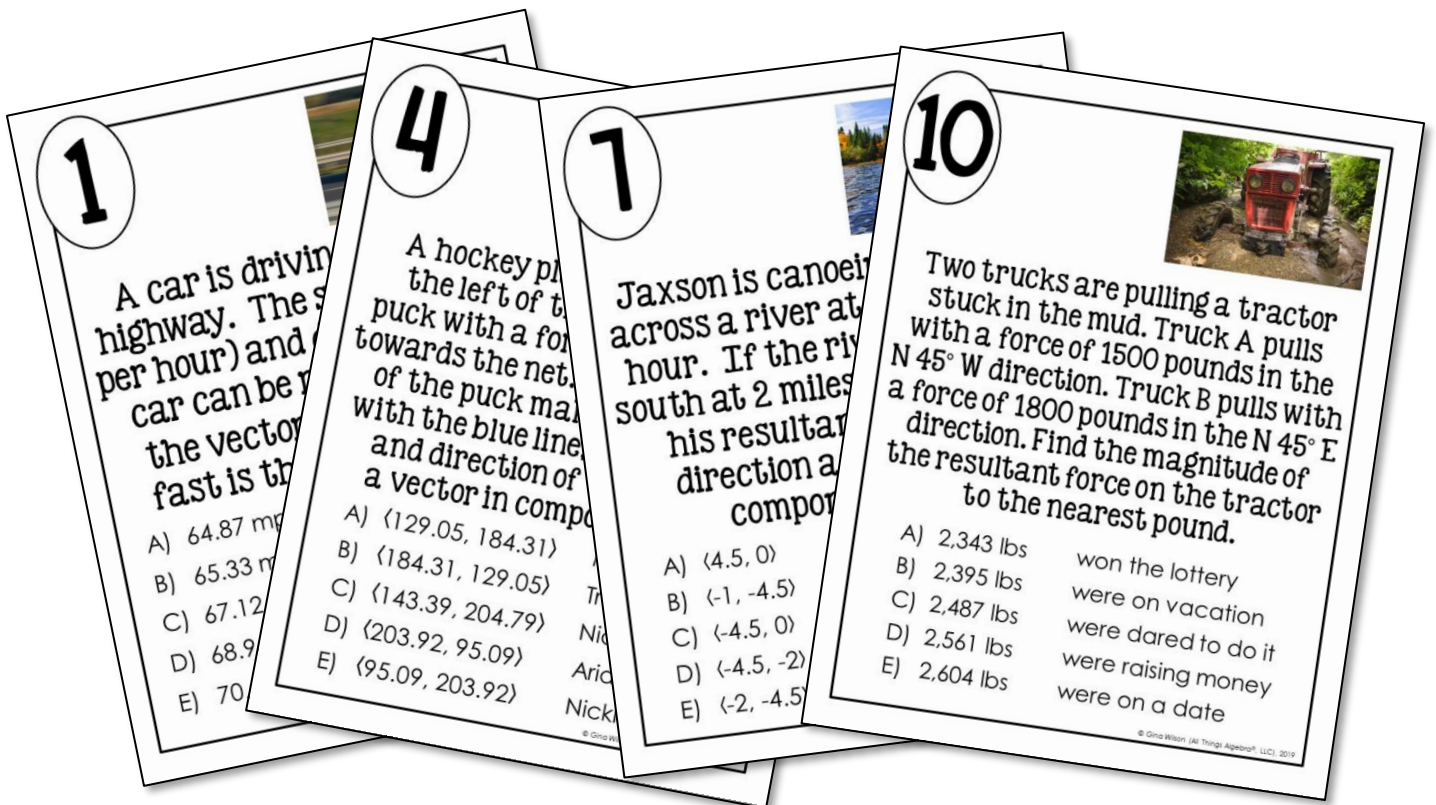
# VECTOR APPLICATIONS

## "Math Lib" Activity!

**Objective:** Students will practice solving vector application problems with this "Math Lib" Activity. This particular activity includes: (1) identify the magnitude or direction angle of a vector given in component form, (2) write a vector in component form given its magnitude and direction angle, (3) identify the horizontal or vertical component of a vector, and (4) find a resultant velocity or resultant force. Questions range in difficulty. The Law of Cosines is required on question 6.

**Activity Directions:** Print and post the ten stations around the room. Give each student the worksheet to record their work as they travel to the stations. Group students (I typically do groups of 3) and assign to a starting problem. Set the timer for 3:30 minutes (more if needed). Students solve the problem at the station, then look for their answer and record the piece to the story. When the timer goes off, they move to the next station.

You are able to edit each slide to change the teacher name and all story elements to personalize for your students. PowerPoint is required to edit the slides. They enjoy seeing which one of their teachers is the "star" of the story!



**10 Stations & Student Worksheet Included**  
**You can change ALL story elements!**