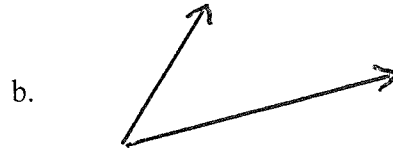
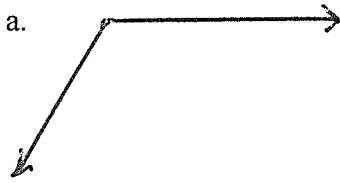
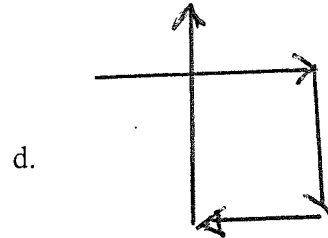


1. For the following, draw the resultant vector.



FOR TAIL TO TAIL
 DIAGRAMS, BOX
 OUT TO CONSTRUCT
 PARALLELOGRAMS



2. Mr. Rocco is flying WEST at an airspeed of 480 km/hr into a headwind of 170. km/hr.
 (include direction and units in answers)

a. What is his resultant velocity with respect to the ground?

b. If he turns around and flies East (and the wind velocity doesn't change), what is his new resultant velocity?

3. Ms. Wheeler is driving her boat pointed 4.9 m/s west on a river that has a 2.1 m/s current towards the south.

a. Determine her resultant velocity, include direction w/angle (state it)

b. Draw a clear, labeled **vector** diagram showing magnitudes and direction

c. If she starts on the eastern bank of the river and the river is 240 meters wide, determine the amount of time it will take her to get to the other bank.

d. How far "downstream" was she taken during her voyage?

4. Mrs. Koegel slams a softball with a velocity 38.0 m/s at an angle of 25° above the horizontal.
 - a. Draw a clear labelled diagram that shows the velocity vector and the horizontal and vertical components of velocity. (draw components as vectors)

- b. Calculate the values of the horizontal and vertical components of the velocity.

5. Mr. Randall is hiking back from Fort Physics.

1. He first walks 10.0 km west, then,
2. Walks 4.0 km South,
3. Trots 6.0 km east,
4. Saunters 8.0 km north
5. And finally, crawls 7.0 km east.

- a. Draw a neat “roughly” scaled head to tail vector addition diagram that shows all five steps, then draw the resultant vector and label it.

- b. State the magnitude and direction of his overall resultant displacement (w/ angle)

1. As the angle between two forces is increased from 10° to 75° , the magnitude of the resultant force

- (A) decreases (B) increases
(C) remains the same

2. Forces A and B have a resultant R . Force A and resultant R are shown in the diagram below



Which vector below best represents force B ?

- (A) (B)
(C) (D)

3. A girl attempts to swim directly across a stream 15 meters wide. When she reaches the other side, she is 15 meters downstream. The magnitude of her displacement is closest to

- (A) 30 m (B) 21 m
(C) 17 m (D) 15 m

4. As the angle between two forces of 5.0 Newtons and 7.0 Newtons increases from 0° to 180° , the magnitude of their resultant changes from

- (A) 0 N to 35 N (B) 2.0 N to 12 N
(C) 12 N to 2.0 N (D) 12 N to 0 N

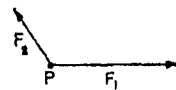
5. If two 10.-newton forces have a resultant of zero, then the angle between the forces must be

- (A) 0° (B) 45°
(C) 90° (D) 180°

6. The resultant of two forces acting on the same point at the same time will be greatest when the angle between the forces is

- (A) 0° (B) 45°
(C) 90° (D) 180°

Which vector best represents the resultant of forces F_1 and F_2 acting concurrently on point P as shown in the diagram to the right?



- (A) (B)
(C) (D)

8. A student walks 1.0 kilometer due east and 1.0 kilometer due south. Then she runs 2.0 kilometers due west. The magnitude of the student's resultant displacement is closest to

- (A) 0 km (B) 1.4 km
(C) 3.4 km (D) 4.0 km

9. A 3.0-newton force and a 4.0-newton force act concurrently on a point. In which diagram below would the orientation of these forces produce the greatest net force on the point?

- (A) (B)
(C) (D)

Name _____

AP-H regents Chapter 4 end handout

1. If a superball travels downward at 23 m/s, hits the floor and rebounds upward at 19 m/s, determine the size and direction of the ball's change in velocity (Δv).

2. Shae and her boat are on the west bank of a river that has a directly southern current and she wants to get straight across a river to the opposite bank. The river has a current of 2.1 m/s and her boat has a water speed of 5.6 m/s.

a) draw a vector diagram that shows: her boat's water speed, the river current and her resultant velocity

b) Find the size of her resultant velocity

c) state the heading she should take.

3. Ms. Green is flying her jet at an airspeed of 310 m/s and her plane is pointed at 32° West of South. There is wind of 80.0 m/s that is blowing towards 42° East of South.

Use the component adding method to determine her plane resultant velocity (include direction)