Name _____ **A** Date _____

Honors Physics Vectors/Projectiles WS #3H

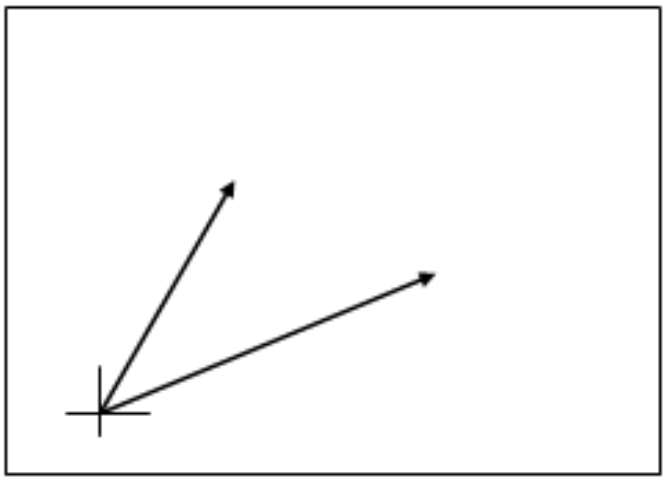
Period _____ Mrs. Nadworny

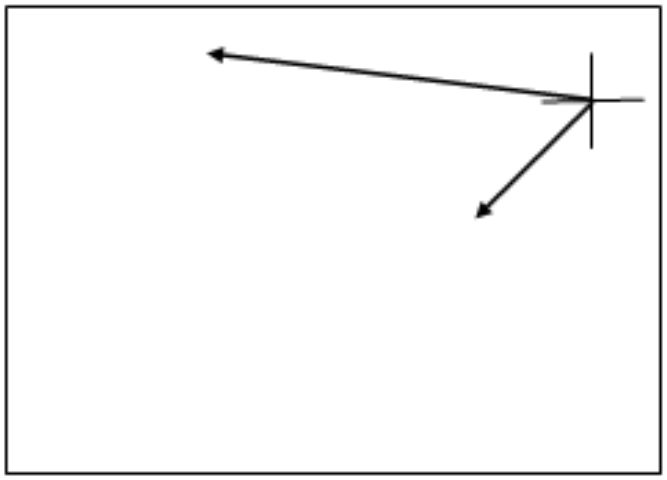
(20 pts)

Concurrent Vectors

Directions –Read textbook pages 85 – 87.

1. Draw in the resultant for the following vectors. Label your resultant.





2. A 6.0 newton force and an 8.0 newton force act concurrently on a point. As the angle between these forces increases from 0^o to 90^o, the magnitude of their resultant

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

3. Two students are pushing a car. What should be the angle of each student's arms with respect to the flat ground to maximize the horizontal component of the force?

   (A) 90° (B) 45° (C) 30° (D) 0°

4. Two 20 newton forces act concurrently on an object. What angle between these forces will produce a resultant with the greatest magnitude?

   (A) 180° (B) 90° (C) 45° (D) 0°

5. A 5.0 newton force and a 7.0 newton force act concurrently on a point. As the angle between the forces is increased from 0° to 180°, the magnitude of the resultant of the two forces changes from

   A) 0.0 N to 12.0 N B) 2.0 N to 12.0 N C) 12.0 N to 2.0 N D) 12.0 N to 0.0 N

Continued on next page

Directions –Follow the steps below to determine the relationship between the angle between concurrent vectors and magnitude of the resultant.

6. Measure the length of the following vectors.

Length _____

Length _____

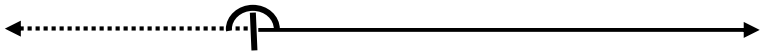
7. The vectors start at 0^0, meaning they point in the same direction. Redraw them so that they are head-tail. Draw and label the resultant below those new vectors you drew. Measure the length of the resultant.

Length of resultant = _____

8. The vectors are then positioned at 90^0, meaning they are perpendicular to each other. Redraw them so that they are head-tail. Draw and label the resultant on those new vectors you drew. Measure the length of the resultant.

Length of resultant = _____

9. The vectors are then positioned at 180^0, meaning they point in opposite directions. Redraw them so that they are head-tail. Draw and label the resultant below those new vectors you drew. Measure the length of the resultant.



Length of resultant = _____

10. As the angle between two concurrent vectors increases from 0^0 to 180^0 the magnitude of the resultant _____.